A COMPARATIVE ANALYSIS OF THE PERCEPTIONS OF COMMUNITY COLLEGE CHIEF BUSINESS OFFICERS AND CHIEF ACADEMIC OFFICERS REGARDING INSTITUTIONAL FACTORS THAT CONTRIBUTE TO EXTENDING COMMUNITY COLLEGE STUDENT TIME TO COMPLETION

By

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A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL OF THE
UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

UNIVERSITY OF FLORIDA

1998

ACKNOWLEDGEMENTS

I gratefully extend my thanks and appreciation to my committee chair, Dr. Dale F. Campbell, and to my cochair, Dr. David S. Honeyman, for their assistance during the course of this study. I would also like to thank Dr. James Doud and Dr. David Miller for their willingness to serve on my committee and for their thoughtful comments, advice, and words of encouragement. Finally, I wish to acknowledge my wife, Kathy, for her patience, her typing skills, and her absolute support of my educational endeavors.

TABLE OF CONTENTS

page

ACKNOWLEDGEMENTS... ii

LIST OF TABLES.. vi

ABSTRACT vii

CHAPTERS

1 INTRODUCTION... 1

Background 1
Statement of the Problem 3
Significance of the Study 6
Statement of Purpose and Research Questions 7
Definition of Terms 11
Research Limitations 13

2 REVIEW OF THE LITERATURE 14

Introduction 14
Perceived Problems 15
Institutional Factors Influencing the Community College Student.. 36
Community College and the Non-Traditional Student............. 44
Summary.. 49

3 RESEARCH METHODOLOGY..................................... 50

Introduction.. 50
Research Purpose and Questions Studied......................... 51
Research Premise and Design...................................... 52
List of Variables Studied 54
Respondent Sample Selection...................................... 58
Data Collection 59
Research Survey Instrument.. 59
Study Limitations...64

page

4 ANALYSIS OF DATA AND FINDINGS.......................... 66

Introduction.. 66
Data Collection.. 66
Description of the Respondents.................................... 67
Analyses of Survey Responses...................................... 68
Analysis of Individual Variable Responses for All Community Colleges Surveyed... 68
Results of Hypotheses Testing................................. 82
Summary of the Findings... 85

5 CONCLUSIONS, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH 93

Introduction.. 93
Conclusions... 93
Implications.. 98
Recommendations for Improvement............................... 100
Suggestions for Future Research................................... 102

APPENDICES

A SURVEY INSTRUMENT... 104

B FIRST COVER LETTER FOR SURVEY.......................... 110

C SECOND COVER LETTER FOR SURVEY...................... 111

D THIRD COVER LETTER FOR SURVEY......................... 112

REFERENCES.. 133

BIOGRAPHICAL SKETCH... 147

LIST OF TABLES

Table

page

1. Comparative Descriptive Statistics For the Administrative And Logistics Related Variables (Chief Academic Officers, Chief Business Officers, and Totals)........................... 69

2. Comparative Descriptive Statistics For Curricular and Program Related Variables (Chief Academic Officers, Chief Business Officers, and Totals)............................ 71

3. Comparative Descriptive Statistics For Faculty Effort And Quality Related Variables (Chief Academic Officers, Chief Business Officers, and Totals)... 73

4. Comparative Descriptive Statistics For Resource Allocation Related Variables (Chief Academic Officers, Chief Business Officers, and Totals)............................ 75

5. Comparative Descriptive Statistics For Student Services and Support Related Variables (Chief Academic Officers, Chief Business Officers, and Totals) 78

6. Descriptive Statistics For Dependent Variable Categorical Sub-scales by Respondent Category For All 46 Paired Groups of Respondents... 79

7. Internal Consistency Coefficients (Alpha Reliability) For the Two Respondent Groups by the Five Dependent Variable Sub-scales... 80

8. Paired Sample t-Test Results Contrasting the Two Respondent Groups Over the Five Dependent Variable Subscales That Correspond With the Five Hypotheses........................... 83

9 Respondent Comments (DV_{01})... 89

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May 1998

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The purpose of this study was to examine the beliefs, attitudes, and perceptions of community college chief business officers and chief academic officers as to which, if any, institutional factors contribute to extending community college student time to graduation. A secondary purpose was to determine if any of the resulting statistically significant factors had significant differences when comparing the responses of the two groups surveyed.

Chief business officers and chief academic officers at member colleges of the Community College Business Officers (CCBO), an affiliate of the American Association of Community Colleges (AACC), were surveyed. There were a total of 250 member colleges surveyed. A total of 159 colleges returned completed surveys, rendering a 63.6% response rate. Among the 159 community colleges returning completed surveys, there were 144 chief academic officers and 152 chief business officers that participated. Of the 159 colleges responding there were a total of 46 colleges where the chief academic officers and the chief business officers could be paired by college. The data were analyzed to identify individual and group institutional factors that are believed to contribute to extending time to graduation. There were five categories of institutional factors studied. The categories investigated were resource allocation related issues, curricular and program related issues, student services and support related issues, administrative and logistics related issues, and faculty effort and quality related issues. In order to address the research questions, a variety of descriptive and statistical analyses were used to summarize the results.

These analyses revealed that curricular and program related issues are perceived to be the strongest contributors to extending student time to graduation. In comparative statistical analyses using dependent sample t-tests, there were no significant differences between the two groups of respondents at the probability $\alpha=0.05$.

There were 19 individual institutional variables within the five dependent variable subscales that were identified by both respondent groups as being greater than moderate contributors to extending student time to graduation. Three of the five dependent variable subscales (administrative and logistical, curricular and program, and student services and support) were identified by both respondent groups as making a greater than moderate contribution to extending community college student time to completion.

CHAPTER 1
INTRODUCTION

Background

With all the concern in the public sector regarding curriculum, time to completion, funding, efficiency, and other related community college issues, there are still questions that remain. Do the outcomes justify the continued public support and the dollars they consume? Are community colleges worth what they cost? Is it time to reassess the basic community college common mission and its resulting outcome (Bensimon, 1994)? Although these questions and others like them have been asked numerous times since the original concept of the community college was developed around the turn of the century, they have rarely been examined in the context of what can the community college do as an institutional entity to create a more efficient way of doing business. These questions have largely gone unanswered for most of the history of the community college mainly because the community college has gone unnoticed and ignored by writers about higher education (Adelman, 1994; Cohen & Brawer, 1996). In the early years of the community college revolution there were strict standards that were required of students and the institutions alike, such as standards regarding entrance criteria, prerequisite and sequential course progression, continual progress toward a predetermined goal, and probation or suspension for those students who did not meet minimum grade or progress standards (Middleton, 1981). For a number of reasons many of the old standards were phased out over the last 20-25 years, and the result has been confusion in some areas of the community college system. In an effort to be everything to everyone, some community colleges may have given up control of some very basic student requirements which has led to a dramatic decline in student progress within some community college systems (Blanco, 1994). It is, therefore, the goal of this study to assist in identifying areas of concern with regard to institutional factors that have contributed to the belief or perception of a decline in student progress which may have, in effect, created an extended time to graduation for community college students. Once the areas of concern were identified, their relative importance based on the perceptions of community college chief business officers and chief academic officers was determined. The subjects of the survey were chosen because of their high level leadership positions within the community college hierarchy. Their positions provide them with unique knowledge and beliefs relative to community college issues.

In recent years, educational institutions at all levels, especially higher education institutions, have been struggling to meet governmentally mandated as well as public demands for accountability. Community colleges are no exception. There are numerous efforts underway to produce evidence of institutional effectiveness in promoting the educational progress of their students. The driving force of many of these efforts was a perception of decline in the community college primary mission of graduating students with the tools required to function in today's marketplace or to prepare them to transfer into a four-year institution with the ultimate goal of attaining a baccalaureate degree. In the broadest sense, the issue of institutional effectiveness revolves around the questioned ability of the community college to maintain its goals of providing access as well as equity without sacrificing quality, all of which must be provided within the mandated credit hour limitations. The mandated credit hour limitations, while not universal, are becoming more prevalent and so must be addressed. Community colleges, by their very nature, offer a complex and broad spectrum of educational opportunities for the general public, which include vocational, remedial, continuing, and transfer education, all of which is provided at a reasonable cost and with very few restrictions.

The need to understand better the problems related to persistence to graduation within a reasonable time span is of particular importance to both universities and community colleges as they struggle with the need to balance quality, access, and reasonable cost.

Statement of the Problem

The financial problems related to the United States educational system are not new. There is increasing pressure from state governing bodies to trim budgets within all areas of education. Nowhere is that pressure more strongly felt than within the community college systems of the United States. Since their inception, community colleges have been expected to do more with less (Blanco, 1994). Considering the financial handicap under which community colleges perceive themselves to be operating, they have done an exceptional job of providing postsecondary education to the masses (Murdock, 1987).

Over the past 15 years there has been discussion regarding ways to hold costs in check (Hill & Owings, 1986). One solution, although not a new idea, is to cap the number of credit hours allowed to be taken with government subsidized tuition. At the community college level that credit hour cap is being set at the 60 semester hour level for an associate degree. Some state systems, such as Florida and California, have already set the caps. Other states are seriously considering credit hour caps as a viable option (KPMG Peat Marwick, 1989). A normal consequence of credit hour capping is a student's time to graduation (Knight, 1994).

While seeking to control the length of time a student takes to complete a program, it is important to understand that causes of increased credit hour accumulation in the quest to complete minimum graduation requirements are not always a result of a student's action or inaction (O'Conner, 1994). There often are institutional factors that contribute to extending a student's time to graduation (Illinois State Board of Education, 1992).

In recent years there have been repeated waves of criticism concerning the escalating costs of higher education as well as increased concern over a perceived degradation of the teaching-learning process. Educational institutions at all levels, particularly community colleges, are struggling to meet these new demands by legislators, citizens, and students. Numerous efforts are underway to produce evidence of effectiveness in the educational process of their students. The major impetus for the current spate of studies evolved out of budget constraints combined with the ever-increasing number of credit hours it takes to complete a college degree.

Historically, approximately 60% of all students entering community college require remedial work (Carter, 1990a). Date (1966) estimated that the percentage of entering students requiring remediation in at least one of three subject areas (mathematics, English, and reading) would reach a high of more than 80% of all entering students. These factors could further increase dropout rates at community colleges and increase the length of time and number of semester hours that students who do persist require in completing their community college degree requirements. Such facts have led to a serious drive to raise the high school graduation minimum test scores for entering community college students.

Studies on the effect of initial attendance at a community college indicate a number of factors that tend to impede progress to baccalaureate degree completion without a specified completion time requirement. When a completion time requirement is factored into the equation, the completion statistics are even more dismal (Carter, 1990b). Because there are widespread variations in student completion statistics, Palmer and Eaton (1991) further suggested “that there are institutional factors that account for at least some of the variance in student time to completion success” (p. 32). Other studies suggest institutional barriers at the community college level tend to hamper student progress (Pascarella, Smart, & Ethington, 1986; Richardson & Bender, 1987).

Given the broad spectrum of factors that affect student time to graduation, the need for more information to aid in the identification and dissemination of the factors that inhibit graduation with the acceptable number of credit hours for an occupational education or transfer degree is an important area of study.

Gosman, Dandridge, Nettles, and Thoeny (1983) discussed a number of studies conducted to determine causes for a student requiring an extended amount of time to graduate, but the primary studies have dealt mainly with four-year colleges and universities and the preponderance of the studies have dealt with factors controlled by the individual students. This study deals only with the factors that are considered beyond control of the student.

Significance of the Study

One of the more persistent questions in educational research has been how to determine what factors relating to student graduation success are attributable to the educational institution itself and not to other external factors or influences (Gati, 1989). Time to graduation at the community college level is worthy of consideration for a number of reasons (Knight, 1994; Porter, 1990). First, students have a vested interest in determining how long it will take them to complete their chosen program so that they may plan for financial resources (Knight, 1994). Second, predicting time to graduation can provide a valuable planning tool for an institution in determining necessary instructional staff and classroom resources, as well as predicting enrollment capabilities and the many student support services required (Porter, 1990).

This research is designed to separate that part of a student's time to graduation caused by institutional factors, as opposed to factors caused by student background, abilities, or other external factors. The findings and conclusions reached as a result of this research are intended as a tool for community colleges in helping them attain the required associate degree time to graduation limits imposed by their governing bodies. These data are expected to identify problem areas that an individual institution may be able to change or eliminate in order to comply with the new legislative mandates.

The ability to predict a profile of community college student time to graduation and successful completion through persistence will provide a valuable tool to community colleges in the process of understanding more fully the student flow through the community college educational system. Although there have been substantial gains in recent years in the ability to predict student success, very little is known about what institutional factors may hinder or contribute to this student success. Expanding knowledge and insight in these areas will provide administrators, advisors, and faculty a foundation for building programs or interventions that will assist students in progressing to the desired community college outcome, whether it is a vocational/technical program or transfer to a university.

Statement of Purpose and Research Questions

The purpose of this research was to survey the beliefs, attitudes, and perceptions of community college administrative leadership to determine which, if any, institutional factors are believed to contribute to extending community college student time to program completion. This study is limited to include just associate degree programs because the associate degree graduation requirements are generally considered to be approximately 60 semester hours, and 60 semester hours was chosen as the baseline. This research answered the following questions:

1. What individual institutional variables, and categorical subscales of variables, contribute to extending time to graduation as perceived by community college chief business officers and chief academic officers at selected community colleges in the United States?

2. Is there a significant difference in the perceptions of the paired groups of respondents (chief academic officers + chief business officers) with regard to the five categorical subscales of institutional variables which may contribute to extending community college student time to program completion?

Research question #1 was designed to analyze the individual institutional factors believed to contribute to extending community college student time to program completion as perceived by community college administrative leadership throughout the United States. The question was tested through the use of a variety of descriptive statistics to summarize the results. The summary statistics calculated were the measures of central tendency, including the mean, standard deviation, and variance. Also calculated were the median, grouped median, and the standard error of the means for the two groups of respondents, as well as the range and frequency distribution. The standard deviation allowed the researcher to determine to what extent scores in the distribution deviated from the mean (Borg & Gall, 1989). The analyses of frequency distribution and range enabled the researcher to view the distribution of scores and to determine if differences were present in the way the two respondent groups scored an individual variable, or categorical subscale of variables.

Question #2 was designed to compare and contrast the beliefs, attitudes, and perceptions of the 46 pairs of respondents regarding the categorical subscales of institutional variables they believe can, or do, influence extending community college student time to program completion.

Question #2 was tested through the use of the following null hypotheses:

1. H_0^1 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the administrative and logistical dependent variable subscale (containing six individual variables).

2. H_0^2 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the curricular and program dependent variable subscale (containing four individual variables).

3. H_0^3 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the faculty effort and quality dependent variable subscale (containing 10 individual variables).

4. H_0^4 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the resource allocation dependent variable subscale (containing 10 individual variables).

5. H_0^5 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the student services and support dependent variable subscale (containing eight individual variables).

The alpha level for rejection of each null hypothesis was set at the 0.05 level. The null hypotheses were all tested by paired sample t-test. This method of analysis was chosen because it allows the detection of differences in the attitudes of the pairs of respondent groups by college regarding the individual variables and the dependent variable subscales.

There are five subscales (categories) of institutional factors under consideration as related to the issue of time to degree. The subscales investigated in this study were (RA) resource allocation related issues, (CP) curricular and program related issues, (SS) student services and support related issues, (AL) administrative and logistics related issues, and (FE) faculty effort and quality related issues.

Definition of Terms

For the purposes of this study the following definitions were used.

Chief business officer refers to the administrator responsible for all matters financial within the community college's scope of activity, including development of college-wide budgets, investments, and overseeing all financial reporting (most commonly the vice president of administration and/or business services).

Chief academic officer refers to the administrator responsible for all matters relating to academics within the community college's scope of activity, including curriculum development, class scheduling, classroom scheduling, and overseeing the faculty regarding academic matters (most commonly the vice president of instruction and/or academic affairs).

Persistence refers to the flow of students through their collegiate career, and it includes two major student dimensions, behavior (enrolled or non-enrolled) and time (when and for how long).

Transfer degree denotes the minimum standard of credit hours required of a community college student that will permit transfer directly to a senior college per an existing articulation agreement.

Time to graduation or time to degree is the length of time it takes a community college student to satisfy the college requirements for graduation with an associate degree and is usually expressed as a definitive number of semester hours or as the equivalent number of full-time semesters enrolled from start to finish. For this study the time to graduation was defined as 60 semester hours for all students as well as four semesters for full-time students.

Educational attainment refers to a statement as to whether or not a student has completed a degree program within a specified number of semester hours and/or a specified time period.

Nontraditional student or special population student refers to the majority of community college students, which are typically older, part-time, having significant outside responsibilities, and generally are employed at least part-time, and often have families, all of which are contrary to the typical student at a four-year institution.

Research Limitations

This research was conducted with the acknowledgment of the following limitations:

1. The research was limited to surveying only the perceptions of chief business officers and chief academic officers at each community college surveyed.

2. The study was limited to surveying only member institutions of the Community College Business Officers (CCBO) professional organization, an affiliate member of the American Association of Community Colleges (AACC).

3. This study was limited to include only associate degree programs because the associate degree graduation requirements are generally considered to be approximately 60 semester hours and this study has selected 60 semester hours as the baseline.

4. This study was limited in that it did not seek to factor in those characteristics that make a community college unique (e.g., size,

geographic location, mission, funding sources, and composition of the student body).

5. Because of the preceding limitations, the ability to generalize the results was limited. The ultimate value of this research was to assist community college leadership in making decisions and/or improving practices that will help create shorter time to graduation.

CHAPTER 2
REVIEW OF THE LITERATURE

Introduction

As the United States confronts an escalating need to produce an educated workforce to sustain a globally competitive economy, issues related to financial accountability, educational effectiveness, and the overall ability to produce the required results, we turn to the higher education research literature for answers. Such research into the available literature produces much data pertaining to issues related to accountability and effectiveness, which validates the prevailing attitude of concern among community college leadership as well as university researchers.

The first section of this chapter highlights the past studies done since the emergence of the community college as a dominant force in our higher education system. This provides the background setting for the analyses performed in Chapter 3 and the transitional thought process that affected the focus of the various studies cited. The two most common early study subjects were (a) community college transfer rates and (b) the ultimate baccalaureate degree attainment (El-Khawas, 1992). The second section of the literature review focuses on and synthesizes the more current available studies on factors most commonly associated with student success or failure. The factors concentrated on are those that are perceived as potential barriers to the progress of community college students, which may in turn promote a perpetuation of the present problems of accountability and persistence. Also reviewed is existing literature related to the issues of student demographics, characteristics, resource allocation, institutional factors, retention rates, and projected success rates with regard to graduation. As noted earlier, the various interests of students, parents, legislators, and education administrators were reviewed as well as literature concerning the economic and social investment in the community college setting.

Perceived Problems

In a broad sense, the problems relating to persistence and ultimate success at the community college level are directly related to the transfer function of community college. The American Council on Education (1991) published a policy statement on the issue of community college transfer function, entitled Setting the National Agenda: Academic Achievement and Transfer. The report highlights the pervasive issues of quality, access, equity, and accountability as the driving forces behind the current emphasis on success and transfer.

The issue of community college effectiveness revolves around the questionable ability of the community college to maintain its goals of access and equity while at the same time not sacrificing its educational quality. The current national debate focuses on whether or not the community college as an institution truly provides students a viable route for baccalaureate achievement.

In a background paper for Setting the Agenda, Palmer and Eaton (1991) noted that, of the little data currently available, most suggest students aspiring to achieve a baccalaureate degree are less likely to achieve that goal if they utilize the community college as an entry point to higher education. National estimates of student intent indicate that only a third of all community college students actually identify transfer as their primary reason for attending a community college (Carter, 1990a; Cohen & Brawer, 1989), and Kansas community colleges reported as high as 60 % of full-time entering freshmen declare transfer as a goal (Johnson County Community College, 1991). The annual Cooperative Institutional Research Program (CIRP) survey reported that among first-time students at community college the proportion of students that aspire to a baccalaureate degree peaks at near 80 % (Astin, Green, Korn, & Schalit, 1987).

Despite the variations that are reported in student intentions, the relative importance of the community college system of education in providing both a means to an end for those students desiring quick entry into the marketplace and an alternative route to baccalaureate degree achievement is incontrovertible. The cited statistics clearly validate community college as a key player in our higher education system, both for the transfer function and for readying our nation's workforce. Great emphasis is being placed on the community college role in the university system by researchers such as Palmer and Eaton (1991) who stated that transfer is "key to the collegiate experiences of a significant proportion of those who enroll in community colleges and of those who earn the baccalaureate" (p. 24).

Trends in Community College Function

There are critics who point to a decrease in the number and proportion of community college students who are transferring to four-year institutions as evidence of a declining transfer function. For example, despite increases in total community college enrollment fed partly by population increases, greater numbers are enrolling in community college for personal and/or job-related skill improvement and thus, by default, lowering the proportion of students enrolled for purposes of transfer. Consequently, this lowers the rate of actual transfer (Cohen & Brawer, 1989; Kissler, 1981; McIntyre, 1987). In a comparison of the NLS High School Class of 1972 and the HS & B Class of 1980, Grubb (1991) found a notable decline in the proportion of community college students actually transferring to a four-year institution. The probability of transferring within four years dropped from 28.7% to 20.2% for the respective graduating classes. A number of other studies have indicated similar patterns of decline across the United States, especially during the 1970s. Kintzer and Wattenbarger (1985) found modest declines in the number of transfers in such states as Florida, Washington, and Maryland. The evidence in totality seems to suggest that the primary mission of a community college is no longer that of a transfer function but rather that of a workforce developer. The transfer function will always remain a part of the mission but not maintain the major role of the past.

Although statistics from national, state, and institutional studies are quite readily available, the literature in reality is replete with inconsistent definitions and methodological procedures, thus rendering interpretation of actual trends somewhat precarious. Depending on the definitions utilized in an analysis, the reports of transfer activity can range from 2% to 30 % (Lombardi, 1979).

Defining Students

Although most analyses typically report the number of transfer students within a particular system, they frequently fail to describe the means by which they identify those students. In the reports that do describe a methodology, there are several criteria set forth as identifying factors:

1. Hours earned at the community college. Adelman (1992) stated, "A transfer is not a transfer unless a sufficient commitment is made to both types of institutions" (p. 6). In other words, a specified credit requirement is established so that a student has more than a casual commitment to the higher education process and will keep the student engaged long enough to benefit from the experience of the college. In many studies a student is considered a transfer if only 6 to 12 semester hours are completed at a community college and the student enters a four-year institution within four years of the community college experience (Cohen, 1994; Fryer, Berman, Weiler, & Clawson, 1990; Grubb, 1991).

2. Primary community college of attendance. Most studies distinguish between two-year college and four-year college transfers and often will report transfers from individual colleges and campuses, as well as those from true community colleges, which necessitates a clear definition of what constitutes a

transfer student, as well as who can claim the student in the case of multiple community colleges. Typically, the college where most of the prior credits are earned is the transfer institution, but many times it is identified as the last institution attended regardless of the number of hours earned (Cohen, 1988; Doucette & Teeter, 1985; Graham & Dallam, 1986).

3. The types of transfer students. The traditional meaning of transfer student generally refers to two-year institution students transferring to four-year institutions, although there are several other types that may be included in any given study, which only adds to the confusion. Such students may be lateral transfers within a system, or reverse (four-year institution to two-year institution) transfers (Lombardi, 1979; Schmitz & del Mas, 1989).

What Does It All Mean?

In short, inclusion, or exclusion, of students as potential transfer subjects on the basis of declared intent, age, enrollment patterns, or degree completion, as well as identification of actual transfers based on community college credits earned, college of attendance, and type of transfer, quite obviously can result in widely differing rates of transfer, and is, perhaps, a poor method of determining community college effectiveness. The implementation of differing analytical approaches to measuring effectiveness serves to widen further the already broad spectrum of variability. Perhaps in an effort to determine community college effectiveness, the causes of why a student proceeds in a particular manner is more important than the ultimate path followed.

In trying to determine what works at the community college level, there are various studies in the literature that look at such other factors as changing demographics (such as an increasing number of high school graduates), social and economic policies of the governing bodies (such as declining financial aid and decreased FTE funding), and changing institutional admissions policies (such as higher standards and freshmen quotas, or closing of the traditional 'open door'), the impacts of which are not fully understood (California Community Colleges, 1984; McIntyre, 1987).

In addition to the controversy over the issue of transfer rates and their relative importance, critics complain that community colleges, by their very nature, may impart a negative impact on effectiveness by reducing the likelihood of attaining a baccalaureate degree. Early evidence of this phenomenon typically focused on longitudinal analyses of freshmen cohorts or high school graduating classes. Alba and Lavin (1981), for example, found that community college entrants to the City University of New York (CUNY) were 11% less likely than four-year entrants to obtain a baccalaureate degree within five years, even after allowances for initial background characteristics. Astin's (1982) review of the Higher Education Research Institute's survey of fall 1971 entering freshmen found baccalaureate completion rates 2 to 3 times lower for those students first entering a community college than for those that first entered a four-year institution. Even after controlling for entering characteristic differences, such as academic preparation, Astin reported a negative partial correlation between community college entry and baccalaureate degree attainment for all ethnic groups. Kinnick and Kempner (1988) conducted a similar follow-up study on the 1974 Oregon high school graduating class and found a significant correlation between baccalaureate degree attainment and the initial enrollment in a four-year institution as opposed to a two-year institution. Although there are several methodological approaches used, each study conducted reported similar discrepancies in the probability of degree attainment in a proscribed reasonable time period (ranging from 11% to 19%). This further supports the thesis that initial entry into a community college is likely to impart a negative effect on degree attainment within a reasonable time period (Anderson, 1984; Nunley & Breneman, 1988; Velez, 1985).

Little data are available to determine if the same effects have been observed in recent years. Grubb (1991), however, analyzed both the 1972 NLS data and the 1980 HS and B data to provide a baseline trend analysis of transfer function and degree attainment patterns. In his analysis, Grubb reported a decline in the proportion of community college entrants earning a degree inside of four years: from 7.4% of the 1972 high school graduates who initially entered a community college to 3.6% of the 1980 high school graduates.

Length of time is a very important variable to consider when doing a study on degree attainment. A number of researchers have indicated that community college students often require an extended period of time to complete a degree as opposed to those initially entering a four-year institution. Cohen and Brawer (1981-82), for example, found that community college students entering the University of California at Los Angeles typically required 1.4 more years to complete a degree than those entering as freshmen at the beginning. As stated by Nunley and Breneman (1988),

> if, as is likely to be the case, community college students take longer to achieve degrees because of less regular attendance patterns or for other reasons, it is probable that differences in degree achievement rates will decline as the time between college entry and data collection increases. (p. 66)

An additional consideration is whether or not controls for background characteristics were incorporated into an analysis. Unarguably, community colleges enroll disproportionately more academically and economically disadvantaged students than do four-year institutions; consequently, many studies incorporate modifications to isolate entering characteristics from a desired "community college effect."

One factor which contributes to an increase in the length of time and number of semester hours is the number of students requiring remedial work upon entering community college. In the past the statistics indicated that approximately 60% of all students entering community college required remedial work (Carter, 1990b). Now there is a serious drive to raise the high school graduation minimum test scores for entering community college students. It is estimated that the percentage of entering students requiring remediation in at least one of the three subject areas (mathematics, English, and reading) will reach a high of more than 80% of all entering students (Date, 1996).

Studies of the impact of initial attendance at a community college indicate a number of factors that tend to impede progress to baccalaureate degree completion without a specified completion time requirement. When a completion time requirement is factored into the equation, the completion statistics are even more dismal (Carter, 1990b). Because there are widespread variations in student completion statistics, Palmer and Eaton (1991) further suggested that "there are institutional factors that account for at least some of the variance in student time to completion success" (p. 32). Other studies suggest institutional barriers at the community college level tend to hamper student progress (Pascarella, Smart, & Ethington, 1986; Richardson & Bender, 1987). Given the broad spectrum of potential impacts that affect student time to graduation, the need for more information on identification of the factors that inhibit graduation with a terminal or transfer degree is an important area of study. A successful achievement rate, which requires an agreed upon establishment of a benchmark such as indicated by occupational education and/or transfer degree completion within a proscribed time limit, is necessary before the debate on the impact of community colleges can be settled.

In recent years there have been repeated waves of criticism concerning the escalating costs of higher education and, at the same time, increased concern over a perceived degradation of the teaching-learning process. Educational institutions at all levels, particularly community colleges, are struggling to meet these new demands by legislators, citizens, and students. Numerous efforts are underway to produce evidence of effectiveness in the educational process of their students. The major impetus for the current spate of studies evolved out of budget constraints combined with the ever-increasing length of time it takes to complete a college degree.

Time required to graduate from college has been of great interest to researchers for many years; however, there has not been a concerted effort on the part of researchers to examine the community college environment as a separate entity. The preponderance of research has concentrated on four-year colleges and universities (Alderfer, 1972; Alfred, 1992; Astin, 1964, 1975; Bayer, 1968; Lavin, 1965; Brune, 1996). Additionally, past research has centered mostly on student factors affecting drop out rates and time to graduation. There has been much attention given to student factors that affect persistence, graduation rates, and transfer rates, but very little attention devoted to institutional factors (Tinto, 1975).

Beginning in the 1980s and continuing on into the 1990s, the issues of retention, persistence, and a predictable length of time to graduate have taken on increased importance. The predictability of college student success in a minimum amount of time is especially critical in light of many college governing bodies adopting rules relating to maximum allowed time to graduation. In many states the rules require graduation in 60 semester hours for an Associate in Arts degree at a community college. If the student does not complete on time, the tuition subsidies will be reduced, and a student will be required to pay a premium tuition rate. The persistence and graduation factors are now driven by colleges' "fear of survival" in addition to the public expectations (Alfred & Kreider, 1991).

Degree completion within the minimum two year, 60 semester hour norm that has been established is much more difficult at a two-year institution because of the student factors over which the college has no control. Research, both old and new, points to the conclusion that the typical community college student is likely to be older, poorer, and more limited in time availability. The typical student will also be educationally less equipped to deal with college level studies (Pascarella & Terenzini, 1991). Degree attainment within two years and 60 semester hours has never been the norm because of the above reasons and because of limited resources, accountability, and outcome standards (Caplan & Van Harrison, 1993). Actually, the body of research concerning only institutional factors that affect the time to graduation rate at community college is quite limited (Ehrle & Bennett, 1988).

The variety of ways in which student persistence has been studied is indicative of the heightened importance of the subject. One system long studied is the person-environment fit. Such studies are an outgrowth of the work of Henry Murry who originated the "need-press" theory in 1938 to describe the motives, drives, and goals of an individual student (the need) and the culture, resources, and demands of the college environment (the press). The extent to which a student can meet the demands of the college and thus derive some sense of satisfaction from the activity is a measure of the expectation of a student to persist at that college, and eventually graduate (Pantages & Creedon, 1978; Starr, Betz, & Menne, 1972).

Because adjustment to college is a transactional process involving both the characteristics of the student and the nature of the college environment, a college may be a good "fit" for one student and not another (Pervin & Rubin, 1967). Also, what may be sound reasons for lack of persistence for one student at a given college may not be relevant for other students or for the same student at another institution (Hackman & Dysinger, 1970). An important component of a person-environment fit theory is the congruence between the reinforcement structure of the college environment and the student's background, which determines the needs and the ability to receive the rewards.

The importance of the individual student in making a decision to persist to graduation or not has been recognized and studied often. The personality and academic ability of the student play a large part (Astin, 1964; Zaccaria & Creaser, 1971). However, the person-environment fit studies recognize as equally important the college environment. In the past, institutional variables were treated as constants or, in most cases, were taken for granted. It is now more commonplace to attempt to describe both the formal and informal environmental pressures on students to understand the changing demands of the college on its students (Cope & Hannah, 1975; Summerskill, 1962).

Although a given college environment tends to maintain stability over a period of time, it is possible to manipulate some parts of the environment more easily than it is to change the individual students (Pace & Stern, 1958; Stern, 1971). Sanford (1962) suggested that research might obtain evidence that persistence, and ultimately graduation, is more related to the college itself than to individual student attributes.

If the college environment is "friendly" to the student needs, there is in response a student commitment to the college, and the student will be more likely to persist to graduation (Astin, 1985; Hackman & Dysinger, 1970; Pantages & Creedon, 1978).

Pfeifer (1976) claimed that behavior is a function of the individual and his environment and that success is a function of the individual, the environment, and the organizational climate (the individual within the environment). The fact remains that most studies have not accounted for the interaction of the person and the environment (Astin, 1975). Cope and Hannah (1975) stated, “If there is friction between a person and a place, it is the person who wears away” (p. viii). The decision to attend college and to persist to completion depends as much on the institution entered, and the curriculum followed, as on the general mental ability of the student (Sanford, 1962; Sexton, 1965).

It is significant to note that in two studies using race as a variable in an effort to predict persistence to graduation, "fit," not race, was found to be the most significant factor (Gosman, Dandridge, Nettles, & Thoeny, 1983; Smith & Allen, 1984). Those studies directly contradicted the findings of Pfeifer (1976) that found a difference in the way whites and blacks reacted to the same environment.

The value of the person-environment fit lies in the recognition that the interaction effects of the person within the environment are significant. Although that interaction is important at a community college, the context is different from the environment of a residential institution. Community college students comprise a diverse group with diverse needs. Most community college students do not graduate with an associate degree. Some choose to transfer to a four-year institution before attaining an associates degree, while others receive the training or course work they are seeking and leave to rejoin the work force before degree attainment. Community college students typically sees his/her educational experiences in terms of the purchase of a consumer good rather than in the traditional view of a "rite of passage into adulthood."

There have been many attempts to create a model to predict college persistence to graduation, such as the Spady (1971) model, numerous correlation studies, and several multivariate studies, but very little has been done in the form of studies dealing with institutional variables. The major contribution of the Spady model was the provision of a theoretical rationale for dealing with both the academic and social systems of the college simultaneously. The Spady model also linked prior experiences and attributes with collegiate social and academic outcomes. The major fault with the Spady model is that it is primarily descriptive, rather than predictive (Tinto, 1975).

Tinto (1975) combined the Durkheim and Spady concepts to create an institutional model rather than a systems model. It was both explanatory and longitudinal. The effect was to spawn many studies that tested the predictive strength of the variables identified by Tinto. A much refined model was developed and published by Tinto in 1987. Tinto's newer model (1987) distinguished between social and academic integration, pointing out that a student can achieve integration in one area without necessarily achieving it in the other. That subtle distinction is important because it points out the fact that excessive integration in one area may actually distract a student from achieving integration in the other area.

Tinto pointed out that to become fully incorporated into the life of a college, students need to disassociate themselves socially as well as physically from prior communities. Such a concept becomes a real problem when applied to a community college. That is because the social and intellectual communities of nonresidential institutions are much weaker. The initial adaptation to community college may be easier, but over time the external forces may pull the student away from the school. Tinto (1988) concluded that lack of persistence to graduation is a longitudinal process of interactions between the student and the academic and social systems, both formal and informal, of the college. Positive integration will lead to persistence, and ultimately, to graduation. Negative integration will lead to student isolation and will promote withdrawal from college before graduation.

The Tinto model makes possible a meaningful synthesis of the literature dealing with persistence in and graduation from college, whether it be a two-year community college or a traditional four-year institution. However, since it has been noted that relatively few multivariate studies have been conducted, and the input, output, and process variables were mixed in ways that did not allow determination of the independent contribution of each variable, the conclusions are mixed and consequently have only minimal value. When family background and socioeconomic status are added into the equation, it is clear that students from poorer families experience a higher rate of nongraduation than do students from more affluent families (Astin, 1964, 1975; Knoell, 1960; Nora, 1990; Panos & Astin, 1968; Pascarella & Terenzini, 1991; Peng & Fetters, 1978; Sewell & Shah, 1968).

The contribution of gender to college completion is another issue with contradictory evidence. Although many studies have found that men have higher graduation rates than women (Astin & Holland, 1961; Peng & Fetters, 1978; Spady, 1970), just as many others have found that it was the type of institution that was the real factor and not gender (Cope & Hannah, 1975; Iffert, 1957; Pantages & Creedon, 1978).

Age as a major contributing factor was also a contradiction. Pantages and Creedon (1978) and Summerskill (1962) found age was not a factor, yet other researchers found that older students are less likely to attend college through degree completion (Astin, 1975; Sexton, 1965). Although some researchers feel that informal interaction with faculty is a social function and not an academic function, there are studies that indicate the opposite, especially in the freshman year (Astin, 1985; Endo & Harpel, 1982; Pascarella, 1980; Pascarella, Terenzini, & Hibel, 1978; Stoecker, Pascarella, & Wolfle, 1988; Terenzini & Pascarella, 1977, 1980).

Even though attrition in community colleges may represent the largest drain on human, financial, and intellectual resources, there has been very little research dealing with community colleges as a separate entity (Pascarella & Chapman, 1983). In the few studies that have been done, it is apparent that background characteristics seem to play a major role in graduation (Pascarella, Smart, & Ethington, 1986; Williamson & Creamer, 1988). Special counseling appears to have an effect on community college graduation rates (Carroll, 1988). The strongest variable that influences persistence, transfer, or stop-out for community college students is the student's original intent (Pascarella et al., 1981, 1986).

There are often external factors that may affect a particular student's progress toward a degree (Shultz, Dickman, Campbell, & Snow, 1992). Many times it is an event in the student's external social system such as family issues, job problems, financial limitations, and severe time constraint that will affect a student (Tinto, 1975). It perhaps can be nothing more than a cost-benefit analysis done by the student to determine if he (she) is obtaining the perceived benefit for the dollars spent when compared to an alternative activity. The cost-benefit theory states that an individual will direct his (her) energy toward the activity that provides the greatest perceived cost-to-benefit ratio over a given period of time.

An abundance of studies in the 1960s and 1970s determined that the more important individual characteristics related to persistence in college are those pertaining to the student's family, the individual's prior educational experiences, and expectations for the future (Weissman, 1990). Prior research has shown that students coming from a lower socioeconomic status exhibit lower graduation rates than students from a higher socioeconomic status. That fact remains true even when intelligence is put into the equation (Sewall & Shah, 1968). Persistent college students tend to come from families that are more educated. The reasoning behind that statement is logical because many studies also show that educated families tend to be more interested in a student's education and also have a higher level of expectation for their children.

As important as family is to student persistence in college, the single most important characteristic is the student him/herself. A student's own ability is perhaps the most important individual factor. Much research has indicated that measured ability is nearly twice as important as any other factor (Tinto, 1993).

As one might suppose, students differ greatly in their abilities, educational experiences, career goals, and family support structure. There are also basic differences in levels of readiness, development, and prior experiences. As a result the persistence rates and graduation rates are widely divergent.

Many educators rely heavily on the use of standardized tests in the admissions process, but there is evidence to suggest that the traditional admissions criteria is not a very good method of predicting a student's performance, retention, or ultimately whether or not a student will graduate. The more recent studies support the older studies in determining that certain student personal, attitudinal, and behavioral characteristics are more accurate predictors of a students achievement in college (Gosman, Dandridge, Nettles, & Thoeny, 1983).

In support of four-year institutions the evidence points to no significant differences among the various types of four-year schools. In a review of between-college effect (those attributes caused by differences in institutional characteristics), the many studies over the past 30 years indicate there is no real difference in the quality of the educational experience. In fact, any difference seems attributable to a perceived difference rather than a real difference. When one does a comparison of equal characteristics in students entering a four-year college, it appears that where a student attends college is of little importance. It matters more what happens to students after they enroll. Research is consistent in showing that there is very little difference across the areas of cognition, psycho-social, and economic outcomes (Stoecker, Pascarella, & Wolfle, 1988). There is also very little difference associated with such things as an institution size, type of organizational structure, curriculum emphasis, or selectivity. If any differences are apparent, they are too small to be of any concern (Likert, 1989).

Such research findings and conclusions tend to support the notions that institutional quality may be misleading (Astin, 1985), especially those based on resources, simple outcomes, or reputation. The perceived differences may in fact translate to greater success in the marketplace after graduation, but the emphasis must still fall on the side of perception rather than any true differences.

Although the majority of research points to no real differences, only perceived differences, there still remains the fact that for certain students, and certain outcomes, the kind of college attended may matter greatly. This reality applies especially to minority and the lower-socioeconomic-status students and involves the differences between residential and commuter colleges and two-and four-year schools. There are also differences when it comes to educating our country's racial minorities as well as the public policy that controls gender equity issues at our colleges (Velez, 1985; Velez & Javalgi, 1987; Voorhees, 1987). Because there are institutions that cater to racial and gender equity concerns, there are very significant differences between the special population institutions and main stream institutions, whether they are two-year or four-year colleges.

Because most two-year schools do not have residential facilities, they, by default, become commuter colleges, and thus their students suffer the educational inequalities and constraints that such a difference implies (Velez, 1985). The research is clear relative to the advantages a two-year college graduate has over the high school graduate, but the research is also very clear in indicating that four-year institution college graduates have an enormous advantage over the two-year institution college graduate. As long as 36 years ago the research indicated that a community college really serves as a chilling factor for students with high aspirations (Clark, 1960). In effect, a community college tends to stifle certain types of students such as the low-achieving, low-socioeconomic-status student. According to Clark's (1960) argument, the community college discourages continued college enrollment and thus reduces the likelihood that students attending a two-year institution will enjoy the educational benefits equal to that of students attending a four-year institution. In later studies (Brint & Karabel, 1989; Karabel, 1972, 1986) the evidence supports the earlier studies. The proliferation of community colleges has created a second-class student. The body of evidence clearly shows a demonstrably lower rate of persistence in further education for community-college-educated students.

Karabel (1986) stated that because of the low baccalaureate attainment rates by community college students, the community colleges are not serving the interests of their students that have higher aspirations. It is clear that community colleges must take a more active role in the educational aspirations of their students.

Over the last 20 years the research has consistently indicated that students entering a four-year institution as a freshman are substantially more likely to obtain a baccalaureate degree than their counterparts that transfer in from a two-year institution. There are multiple effects that manifest themselves within the entire mission and psychology of a two-year college. The lower degree attainment rates become compounded by reduced expectations in area of occupational status. This, by default, produces reduced income.

One of the subtle ramifications brought on by the community college ideal, such as that of intergeneration effects, is but one of the many issues at stake. It has long been known, for example, that parents with high educational attainment levels pass on to their children those higher educational, occupational, and economic ideal and attitudes. With that in mind, it logically follows that children of better educated parents will benefit in a positive way from their parents. Logic also suggests that if the parents are not highly educated, the children will benefit only to the extent the parents consider education important.

The ideal, of course, is for the outcomes of a community college to become the low-cost equivalent of the outcomes of a four-year college. Lawmakers, parents, and students alike continue to believe in the two-year college solution and, as such, still tend to think of them as transfer institutions. The reality, however, does not support that premise. Astin (1977) has suggested that the yardstick of economic advantage attributed to two-year and other commuter type institutions be measured in cost per degree granted rather than cost per student.

Institutional Factors Influencing The Community College Student

Temple and Polk (1986) described educational attainment as a step-by-step success flow in which students deviating from the main flow (such as initially entering a community college) diminish their likelihood of degree attainment. In other words, as Cohen, Lombardi, and Brawer (1988) stated:

> All community college students must transfer to four-year colleges or universities before they can obtain a baccalaureate degree. Therefore, there is bound to be a shortfall in the number of community college matriculates who obtain baccalaureate degrees when compared with students other predicts a certain number of dropouts. (p. 385)who enter senior colleges as freshmen. The very necessity of leaving one institution and entering another predicts a certain number of dropouts. (p. 385)

Beyond this reasonable expectation of lower probability of successfully attaining a degree, there have been a number of studies that have attempted to explain both the perceived decline in transfer activity as well as the negative impact of the community college in terms of other intervening factors. Each of these factors, most of which are classified as either student-oriented or institution-oriented factors, have been shown to be positively or negatively associated with the educational progress of community college students.

Student-Oriented Factors

Student factors that impact community college students and their academic progress toward degree completion are very well known and typically fall into one or more of several broad-based categories: demographic characteristics, academic background, and student intentions. Only brief attention is given to student factors for the purposes of this study.

Demographic factors. In general, when describing a typical community college student, one comes up with a picture that is the antithesis of a four-year college student. Demographically they fall into several groups of people, that is, minority students, students of lower socioeconomic status, older students, and females (Adelman, 1992; Crook & Lavin, 1989; Jones & Lee, 1992; Kinnick & Kempner, 1988; Lombardi, 1979). This, however, is a two-edged sword because many other studies seem to indicate that such factors actually tend to produce only limited effect on academic progress and that other variables interact to produce stronger impacts on the community college student (Lee & Frank, 1989; Pascarella, Smart, & Ethington, 1986; Velez & Javalgi, 1987).

Academic factors. A general decline in the academic prowess of new high school graduates is the major factor in community college attrition. It is notable that almost half of high school seniors plan to enroll in higher education, yet only 35% are in college prep academic programs (Ballesteros, 1988).

The perception of decline in academic skills is of particular concern to community colleges, because the traditional open-door policy of admissions actually encourages the enrollment of students with weaker academic skills

(Clowes, Hinkle, & Smart, 1986). Other studies indicate that poor high school preparation and/or academic achievement has a negative impact on community college success, including degree attainment (Kinnick & Kempner, 1988; Smith & Szeszycki, 1990; Webb, 1989).

Student intentions. Most studies focus on student aspirations of attaining a degree. In fact, students who plan on degree attainment are more likely to achieve that goal (Adelman, 1992; Crook & Lavin, 1989; Grub, 1991). In line with that mode of thought studies also indicate that vocational students have less probability of attaining a baccalaureate degree than students enrolled in a pure academic program (Anderson, 1984; Grubb, 1991). Because student intentions are usually not clear upon entry and/or may change one or more times during the course of a community college academic career, it is quite obvious that the actual course taking history may more accurately indicate student intentions (Adelman, 1992; Cohen, 1983).

Institution-Oriented Factors

Perceived institutional factors that have been reported in the literature as having an effect on community college student progress most often focus on the acceptance of transfer credit hours, vocational programs, and academic or social integration of students within the educational community. Persistence to graduation was first studied as idiosyncratic and reflected the "fit" of an individual student within a particular academic setting. A major contribution of the need-press, or person-environment fit literature, is the examination of the college environment rather than focusing exclusively on the student. Because the variables were studied in isolation along with the college selection process as the main goal the findings of previous studies were often contradictory, and many times led to oversimplification and, as a result, misleading conclusions.

A number of researchers indicated a loss of credit hours when desiring to transfer as a negative impact on persistence to degree attainment. Richardson and Bender (1987), in a national study of major universities, reported that 58% of those who transferred out of community colleges lost a significant number of earned credit hours and an additional 25% had extra credits accepted but not counted toward a degree. In another study of community college transfer students, Pincus and DeCamp (1989) found that students who did not complete degree requirements were twice as likely as those who completed degrees to have lost credits somewhere in the process.

There is evidence of other factors negatively impacting the community college student. For example, students who complete the Associate in Applied Science degree are more likely to lose credits in a transfer than students who complete the Associate in Arts degree (Bragg, 1982). A study of 1987 graduates of the City Colleges of Chicago (1990) indicated that the average graduate earned approximately 35% more credit hours than are necessary for the associate degree. Much of the excess is comprised of nontransferable remedial credits as well as credits with a grade below the acceptable threshold of "C." There is a difference of opinion as to who is at fault for credit loss problems (Dougherty, 1992).

The rise in vocational type programs is evident in a corresponding decline in students completing an academic associate's degree. Even though the associate's degrees awarded increased by 24% between 1974 and 1985, the majority of growth was in occupation-related areas and not in the more traditional liberal arts area. In fact, the number of liberal arts degrees awarded declined by 5% between 1982 and 1984 (Carter, 1990b, Palmer, 1987-88).

Although the shift from academic programs to vocational programs may be attributed to student response to major changes in the job markets (Friedlander, 1980), many critics of community college effectiveness describe such change as an institutional effect. This is because community colleges, in response to community needs, have the effect of diverting students away from academics and into the vocational areas. Community colleges, by de-emphasizing the academics in favor of job skill training, may prepare a student for gainful and rewarding employment, but at the same time they are in effect decreasing a student's likelihood of transferring and persisting to degree attainment (Brint & Karabel, 1989; Pincus & Archer, 1989). This phenomenon was first identified by Clark in 1960 as a "cooling out" function. It was later described by Karabel in 1972 as a process by which a community college would place an academically less qualified or inadequately prepared student into a program offering a less restrictive educational or occupational opportunity which has the effect of skewing transfer and graduation data.

Many researchers drew upon Tinto's (1975) model of student attrition as a foundation for further study. His model stated that after controlling for individual characteristics, prior experiences, and commitments, "it is the individual integration into academic and social systems of the college that most directly relates to his continuance in that college" (p. 96). After acknowledging the limitations of his early model, Tinto (1987) offered a revised model that incorporated prior intentions and external forces or commitments as additional determinants of a student's decision to withdraw. Tinto (1987) also indicated that academic integration may play a greater role than social integration in persistence at two-year and other nonresidential colleges.

Factors relating to academic integration usually involve academic progress and are measured by grade point average at both community college and at senior college. Usually, there is a high correlation between community college grade point average and senior college success (Amonette, 1988; Phlegar, Andrew, & McLaughlin, 1981; Young, 1982). Alternative measures of academic progress, such as number of courses passed or failed (Webb, 1989) or community college credits earned (Lee & Frank, 1989), have also been shown to have an impact on persistence.

Many critics of the community college system of education in America often point to the perceived failure of community colleges in providing academic course work as rigorous as that of senior educational institutions. This, in turn, can hamper future progress toward a degree (Amonette, 1988; Doucette & Teeter, 1985; Hills, 1965; Kissler, Lara, & Cardinal, 1981). From a purely qualitative perspective, Kissler, Lara, and Cardinal (1981) found that 30% of students educated at a community college did not feel they were adequately prepared for continuing study at the senior college level.

Interaction with faculty is often proposed as an additional measure related to academic integration, yet community college students rarely interact with faculty (Cohen, Brawer, & Bensimon, 1985). In effect, lack of academic rigor as well as lack of faculty involvement with students serve as potential barriers to satisfactory academic progress in a community college setting (Rendon, Justiz, & Resta, 1988; Richardson & Bender, 1987).

Persistence in community colleges may also be impacted by the degree to which a student is socially integrated into the whole college scene and the educational process itself. Working in a campus job, working fewer hours, development of new personal relationships, and other extracurricular activities have all been cited as major determinants of social integration (Anderson, 1984; Walleri, 1981). These factors, however, present a problem to the community college student because many of the traditional college activities do not apply in a normal community college setting. Many students are part-time and have pressing outside responsibilities. There are mixed reviews on the role that social integration plays in the community college setting with many studies concluding that it plays no significant part in community college persistence (Halpin, 1990; Mulligan & Hennessy, 1990; Tinto, 1987; Voorhees, 1987). On the other hand, Bers and Smith (1991) and Pascarella, Smart, and Ethington (1986) still found that social integration was a significant factor in community college persistence, although their definition of social integration included faculty-related variables that could just as easily fall into the category of academic integration. Membership in student organizations was found to have a significant positive impact on persistence (Pincus & DeCamp, 1989).

Community College and the Nontraditional Student

Quite frequently the findings of researchers are inconsistent, which is suggestive of perhaps other factors being more accurate in explaining the diverse behavior found among the community college student population. As more special population and other nontraditional students utilize the community college as the entry point into the higher education experience, the resulting character of the entire student population becomes more diverse. That diversity becomes readily apparent as students engage more frequently in a sort of ad hoc attendance pattern designed to meet individual goals or needs (Adelman, 1992; Cohen & Brawer, 1989; Palmer, 1990). Even initial entry into community college is labeled as the "nontraditional" route to a higher education, which is at the start perceived as having a "lesser" connotation and leads by default to a lesser probability of ever attaining a baccalaureate degree (Ottinger, 1991a).

There are a number of other factors that may contribute negatively or positively to community college student academic progress, the impact of which have not been fully addressed in the recent literature. These factors relate primarily to delayed entry into postsecondary education, stop-out behavior or part-time enrollment, multiple changes in majors, and drop-out behavior.

Time to Graduation

National trends suggest that today's undergraduates are taking ever increasing lengths of time to complete their undergraduate degrees. The 1991-92 NCAA graduation-rates report for Division I institutions states that the average time required for graduation of new full-time freshmen is now at 4.6 years (National Collegiate Athletic Association, 1992).

This phenomenon is even more pronounced at the community college level. Recent studies of baccalaureate degree recipients indicate that a student entering an upper division college as a transfer from community college typically takes longer to graduate than do students entering a four-year institution from the start of their higher education experience. As an example, in a survey of graduates from the state of Washington four-year colleges, it was found that 63% of those students entering senior colleges as transfers from community college earned a baccalaureate degree in five years or less. The same study showed that 88% of the students that entered the four-year institution at the start of their higher education career attained baccalaureate status in five years or less (Washington State Board for Community College Education, 1989). In another study it was found that more than half of the community college transfers into the City University of New York required more than five years to graduate compared to only 16% of those students entering directly (Lavin & Crook, 1990). It was further noted that there was a distinct ethnic disparity in time to degree when a longitudinal study was applied. That study showed that if the students were only tracked for six years, it would fail to indicate 14% of the degrees earned by white students, more than 40% of the degrees earned by Hispanics, and almost half of the degrees earned by African Americans.

Extended time to graduation may be accrued during community college, during senior college, or both. Two separate studies of community college graduates determined that the average time to two-year degree attainment was about nine semesters (City Colleges of Chicago, 1990; Philadelphia Community College, 1982). Studies of four-year institutions also showed extended time to degree attainment. Among the transfers from the City Colleges of Chicago (1990) who completed a baccalaureate degree, more than 30% took three to four years to complete the degree after transfer. Also, in a study of transfer students into DePaul University more than 25% required a fifth year to complete the baccalaureate degree (Smith & Szeszycki, 1990). It has been shown that one of the major reasons for extended time to degree completion in community college students is "less regular attendance patterns" (Nunley & Breneman, 1988, p. 66).

Delayed Entry

There have been a number of studies that looked at the impact of entering college directly out of high school as opposed to entering after a delayed period of time. A study by Kempner and Kinnick (1990) concluded that the time period right after graduation from high school was a true "window of opportunity" that increases the likelihood of attaining a baccalaureate degree. Their longitudinal study of Oregon high school seniors indicated that 38% of students entering shortly after high school graduation completed a baccalaureate degree within 10 years as opposed to only 8% of those students who delayed entry into college. Temple and Polk (1986), in a study that tracked the academic progress of young sophomore men, found that 51% of those who entered early, and only 22% of those who delayed entry eventually completed a baccalaureate degree. The conclusion of many studies did indicate that attending a community college at the earliest opportunity is still a better alternative than delaying entry into any college (City Colleges of Chicago, 1990; Kempner & Kinnick, 1990; Lavin & Crook, 1990; Smith & Szeszycki, 1990; Washington State Board for Community College Education, 1989).

Part-time Attendance

In a recent study completed by O'Brien (1992), it was shown that there was a 200% increase in the number of part-time students enrolled in higher education institutions over the prior 20-year period. In the same study it was determined that the majority of these students were enrolled on a part-time basis.

Other studies indicated that part-time students are less likely to transfer to an upper level college than are full-time students (Kissler, 1981; Lombardi, 1979). Other studies backed up that finding. For example, a survey completed by the Michigan State Board of Education (1990) indicated that only 19% of part-time community college students were likely to seek a baccalaureate degree as opposed to 34% of full-time students. It was also shown that the part-time students were more likely to drop out or stop-out of college before attainment of a degree (Walleri, 1981; Ottinger, 1991b).

In addition to the part-time phenomenon other studies indicated that stop-out played an ever-increasing role in the ultimate time to degree completion of community college students. In a study by Grosset (1993) it was reported that as many as 42% of community college students that obtained a degree had stopped-out at some point for at least one or two semesters which obviously contributed to an extended period of time required to complete a degree. The ultimate conclusion is that stop-outs have a lower rate of baccalaureate degree attainment than do students that attend college on a continuous basis (Ottinger, 1991a; Carroll, 1989).

Multiple Major Changes

A number of studies in the 1960s failed to provide definitive answers on the subject of the effect of multiple major change. A more recent study by Theophilides, Terenzini, and Lorang (1984) concluded that while 90% of community college students reported the goal of attaining a baccalaureate degree, nearly 78% of the same students still changed majors at least one time during their collegiate career which actually had a dual negative effect. It had the effect of extending time to graduation of those that eventually graduated, and it decreased the possibility of the affected students from ever graduating. Simpson (1987) concluded that the prevalent reason for each major change was a discontent with the program the student enrolled in. In a related study Bers

(1988) concluded that older students changed majors less often which was an indication that older students were surer of what they wanted out of life.

Other than the Bers and Simpson studies there is little other information available pertaining to student major changes at the community college level. There are, however, a number of studies where the authors concluded that a shift in major contributes a great deal to the number of credits actually obtained before actual graduation (City Colleges of Chicago, 1990).

The Overall Significance

The nontraditional behavior described by Grubb (1991) as "milling around" brought together the previously described student behavior to reach a conclusion that nontraditional behavior by community college special populations created a considerable obstacle for community college leadership. The problem difficulty became evident when they attempted to provide a structure to the general education core curriculum so that a student could complete a degree in the shortest time possible. Increased understanding of non-traditional student behavior is mandatory if community colleges are ever going to create a minimum time span to degree attainment.

Summary

This chapter has provided the background information and conceptual orientation necessary to help lead into and provide a basis for which the following investigation builds and expands. Specifically, this study investigated institution-oriented factors that may adversely influence the progress of a community college student in the quest for degree completion.

CHAPTER 3
RESEARCH METHODOLOGY

Introduction

The length of time required for community college students to complete their planned program of study is of concern to all segments of our varied communities in light of the increasing financial limitations. There is also increasing pressure to meet new and more rigid accountability standards. Many state legislatures, Florida and California for example, are demanding that all of their colleges produce better educated students in shorter time spans. The issue of extended time to college completion also reaches into every taxpayer's home and pocket. For every extra semester it takes for a student to graduate, there are corresponding taxpayer tuition subsidies required in addition to the direct out-of-pocket expenses to the students and their families. As noted by Knight (1994) and Brune (1996), there exists a substantial body of published research in the subject areas of persistence, retention, and degree attainment related to baccalaureate level students. There has, however, been only a limited amount of research dedicated to institutional factors influencing persistence, retention, and attainment of degree. An even smaller body of research has been published centering on the community college environment and the institutional factors influencing time to program completion that are unique to the community college setting. At issue in this study is the identification of institutional factors that may in some way affect community college student time to completion of a program of study. This study did not seek to identify issues that can be traced to the students themselves or to potential external causes. The ultimate purpose was to analyze the beliefs, attitudes, and perceptions of community college administrative leadership in an effort to reveal those institutional factors that are believed to be issues of fact with regard to extending time to program completion. A secondary fallout of this research was to identify institutional factors that are believed not to influence student progress in a negative manner. Discussed in this chapter is the methodology used to address the research issues. Included are the statistical applications used, the listing of the variable candidates, the sampling and data collection techniques used, the questions to be answered, the testing methods used, and the null hypotheses of the study.

Research Purpose and Questions Studied

The purpose of this research was to survey the beliefs, attitudes, and perceptions of community college administrative leadership to determine which, if any, institutional factors are believed to contribute to extending community college student time to program completion. This study is limited to include just associate degree programs because the associate degree graduation requirements are generally considered to be approximately 60 semester hours, and 60 semester hours was chosen as the baseline. This researcher sought to answer the following questions:

1. What individual institutional variables, and subscales of variables, contribute to extending time to graduation as perceived by community college chief business officers and chief academic officers at selected community colleges in the United States?

2. Is there a significant difference in the perceptions among the two distinct groups of respondents (chief academic officers and chief business officers) with regard to the five groups of institutional variables that may contribute to extending community college student time to program completion?

Research Premise and Design

Research question #1 analyzed the institutional factors believed to contribute to extending community college student time to program completion as perceived by community college administrative leadership throughout the United States. The question was tested through the use of a variety of descriptive statistics to summarize the results. The statistics were calculated for each individual variable as well as the five subscales of variables. They were calculated for each respondent group separately and combined. The summary statistics calculated were the measures of central tendency, variability, standard deviation, variance, range, and frequency distribution. The standard deviation allowed the researcher to determine to what extent scores in the distribution deviated from the mean (Borg & Gall, 1989). The analyses of frequency distribution and range enabled the researcher to view the distribution of scores and to determine if differences were present in the way the two respondent groups scored a variable or subscale of variables. The measures of variability and central tendency were also calculated for the five categorical subscales of variables, both for the total sample and the two distinct types of respondents.

The second question compared and contrasted the beliefs, attitudes, and perceptions of the two respondent groups regarding the five subscales of institutional variables they believe can, or do, influence extending community college student time to program completion. It was tested through the use of the following null hypotheses:

1. H_0^1 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the administrative and logistical dependent variable subscale (containing six individual variables).

2. H_0^2 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the curricular and program dependent variable subscale (containing four individual variables).

3. H_0^3 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the faculty effort and quality dependent variable subscale (containing 10 individual variables).

4. H_0^4 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the resource allocation dependent variable subscale (containing 10 individual variables).

5. H_0^5 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the student services and support dependent variable subscale (containing eight individual variables).

The alpha level for rejection of all null hypotheses was set at the α= 0.05 level. The five hypotheses were tested using a paired sample t-test. This method of analysis was used because it allowed the detection of differences in the attitudes of the two distinct respondent groups regarding the individual variables and the grouped variables. In testing for the statistical differences, a computed "t" value was derived which indicated the statistical significance.

List of Variables Studied

The institutional variables determined appropriate for use in this research were selected after an extensive review of the available literature and studies related to the research issues. A logical approach was used in the variable development process. There were 38 individual institutional variables ultimately chosen for the survey. The variables chosen were representative of five distinct categorical groupings: Resource allocation related issues, curricular and program related issues, faculty effort and quality related issues, administrative and logistical related issues, and student services and support related issues. The variables for student services and support related issues were developed as a result of literature review and discussions with knowledgeable experts in the field. The remaining variables and their categories are a derivation of an existing variable set developed by Brune (1996) as well as discussion with educational leadership and an extensive literature review. The existing variable set was tailored for use in a community college environment as opposed to the university setting. All selected variables were those that are believed can be controlled by institutional policy and specifically excludes factors that this author believes can be controlled by the students. In addition to the 38 individual institutional variables chosen for the survey, a provision was made for a descriptive comment variable (DV_{01}) which could be used by respondents to address issues that they felt were important but were not addressed in the main body of the survey.

Resource Allocation Related Variables

The following variables were used to describe resource allocation related issues:

RA 1=the percentage of resources invested in salaries and benefits for faculty

RA 2=the percentage of resources invested in student counseling activities

RA 3=the percentage of resources invested in salaries and benefits for administrative management and other non-instructional support staff

RA 4=the percentage of resources invested in operating expenses, (this includes, but is not limited to, supplies, travel allowances, computer hardware and software, and contractual costs)

RA 5=the percentage of resources dedicated to capital outlay, (this includes, but is not limited to, equipment and furnishings)

RA 6=the faculty to student ratio

RA 7=the percentage of full-time faculty employed

RA 8=the percentage of part-time and/or adjunct faculty employed

RA 9=the average class size of required core courses

RA10=the limiting factors of the physical plant itself, such as available classroom space and other similar problems

Faculty Effort and Quality Related Variables

The following variables were used to describe faculty effort and quality related issues:

FE 1 =the percentage of faculty holding doctoral degrees

FE 2 =the percentage of faculty holding master's degrees

FE 3 =the percentage of faculty holding bachelor's degrees

FE 4 =the percentage of faculty holding no degree

FE 5 =the percentage of faculty effort spent on academic advising

FE 6 =the percentage of faculty effort spent on instructional duties

FE 7 =the percentage of faculty effort spent on research, or other non-instructional activities

FE 8 =the number of courses taught each semester by full-time faculty

FE 9 =the number of courses taught each semester by part-time, or adjunct faculty

FE10=insufficient faculty response to special population student needs

Curricular and Program Related Variables

The following variables were used to describe curricular and program related issues:

CP 1 =knowledge base expansion (the rapid growth in the body of knowledge associated with education which increases the content and complexity of what must be taught in a course)

CP 2 =degree requirements, (other than the number of credit hours required to graduate), such as sequenced course obligations and other core curriculum requirements

CP 3 =requirements placed on academic programs by federal, state, or local district governmental bodies that regulate or accredit the program requirements

CP 4 =availability of adequate remedial services to properly prepare a student for college level work

Student Services and Support Related Variables

The following variables were used to describe student services and support related issues:

SS 1 =availability of adequate testing and placement capabilities (placing students in classes for which they are not prepared)

SS 2 =percentage of resources invested in student services related activities, (this includes, but is not limited to, counseling, orientation, and financial aid)

SS 3 =admissions requirements, or lack of such requirements, (such as a open door policy)

SS 4 =availability of child care facilities

SS 5 =availability of transportation

SS 6 =availability of nearby and/or college sponsored housing

SS 7 =lack of response to special population students, such as supplying the required level and variety of student services needs

SS 8 =availability of adequate financial aid for all students that require assistance

Administrative and Logistics Related Variables

The following variables were used to describe administrative and logistics related issues:

AL 1=scheduling of classroom space (size and number of classrooms available)

AL 2=the timing and sequencing of courses offered each semester

AL 3=the number and variety of course offerings each semester for the general education/liberal arts requirements as well as any other mandated course requirements

AL 4=the nature of drop/add/withdrawal policies at the institution

AL 5=the grade forgiveness policy at the institution

AL 6=nonscheduling of specific required transfer courses in a reliable sequence

Respondent Sample Selection

The respondent sample population for this research consisted of the chief academic officers and chief business officers at 250 member institutions of the Community College Business Officers (CCBO) professional organization, an affiliate of the American Association of Community Colleges (AACC). They were selected because of their perceived expertise on matters involving the administration of a community college. The assumption was made that the two respondent groups think about issues differently because of the very different roles they play in the overall picture (e.g., the academic officers would be more classroom issue focused, and the business officers would view things from a dollar and cents perspective). Of all the responses returned, there were 46 pairs of chief academic officers and chief business officers identified that could be paired with specific institutions.

Data Collection

The data used to assess the institutional variables that may contribute to extending community college student time to program completion was collected by surveying the chief business officers and chief academic officers as identified previously. There were a total of 500 individuals surveyed (two per institution) which represented the entire United States geographical area. The surveys were color coded as a means of identifying the respondent groups. The return envelopes were zip code specific so the individual institutional pairs could be identified. Of the surveys distributed, there were 296 returned, which represented 159 individual community colleges and/or community college systems. There were returns from 144 chief academic officers and 152 chief business officers. The end result consists of 46 institution-specific pairs that could be positively identified.

Research Survey Instrument

A Likert scale survey was selected as the appropriate method to assess the perceptions of the participants concerning the relative importance of the independent variables described above (Likert, 1967). The survey method meets the following criteria established by Fowler (1984):

1. The questionnaire was self-explanatory and does not involve reading instructions continuously.

2. The questionnaire was limited to closed end questions so as to avoid problems with incomplete answers, vagueness, and difficult coding.

3. Only one question form was used throughout the survey in order to minimize confusion on the part of the participant (respondent) and to make the survey easy to answer.

4. Redundant information regarding what the questions were intended to measure was provided at the beginning of each section in order to decrease the opportunity for the respondent to become confused.

5. The survey instrument was designed to be as reliable as possible, and all questions were presented in a standardized format. Multiple questions were asked under each of the five topic categories in order to increase the validity of the measurement process.

The survey instrument was reviewed by several research experts for appropriateness of form and format. They were asked to review the survey for relevance of content and to make suggestions relative to the clarity of the statements. Since the concept of the survey was to analyze the respondent attitudes, beliefs, and perceptions in relation to a variety of institutional practices or omissions, an attitude scale was selected as the appropriate method. Although general attitude scales are not considered very accurate predictors of specific behavior (Fishbein & Ajzen, 1975), the Likert-type scale selected is considered the most reliable and often is used as the scale of choice in educational research. The scale used for this research was the same as used for a similar study (Brune,

1996) which studied the same type of information, but within multiple colleges of a single university rather than the single pairs of respondents from multiple community colleges. There were five points along a continuum which provide an infinite number of cumulative scores along the scale. The five points are as follows: l=no contribution, 2=low contribution, 3=moderate contribution, 4=high contribution, and 5=strong contribution. Because of the number of categories along the scale, there is a greater likelihood that the true variation among the respondents was measured. After the survey instrument was finalized, the internal consistency was calculated. The Cronbach's Coefficient Alpha (a), a general form of the Kuder-Richardson-20 formula for reliability, was used as the method of calculation. The formula is expressed as follows:

$$\alpha=(k/k-1)x[1-(\Sigma S^2\text{item})/(S^2\text{instrument})]$$

It was chosen because it is the method of choice in educational research when survey items are not scored dichotomously as is the case in a Likert scale format. The resulting Cronbach's Coefficient Alpha values can range from a low of zero to a high of numeral one. The values achieved for this survey instrument were a= 0.9361 for chief academic officers and a = 0.9284 for chief business officers.

While this research recognizes that some prior research (Blanco, 1994; Stoecker, Pascarella, & Wolfle, 1988; Velez, 1985*)* concluded that campus environment and institutional policies and practices significantly influence persistence and graduation rates, but that the uniqueness of the individual institutions make such data institution specific, it was the intent of this research to expand the generalizability of the results to include all community colleges in the United States. This research tightens the framework for community colleges to conduct time-to-completion studies at individual institutions by identifying the institutional variables that are believed by community college administrative leadership to exert the greatest influence on community college-student's time to program completion. It perhaps can identify areas that are considered of little consequence so that precious time and resources will not be wasted investigating those areas.

Pretesting the Survey Instrument

In order to pretest the survey instrument adequately, 12 community colleges were chosen from the list of available CCBO member institutions. The selected institutions were each mailed a packet containing a survey, a pre-addressed return envelope, and a transmittal letter explaining what the researcher was seeking. The packet was sent to the chief business officer and the chief academic officer at each institution. All were asked to complete the survey and to make comments regarding any ambiguities or problems they could find with the questions or the method employed. The test participants were asked to keep track of the time required to complete the survey and, upon completion, return the instrument to the researcher. A time limit of 30 days was allowed for the entire pretest process. The comments obtained were analyzed, and suggestions for improvement were incorporated into the final version of the survey instrument.

Pretest Return Rate

Of the 24 pretest surveys mailed out, 18 were returned completed, resulting in a 75% return rate, which was regarded as satisfactory for the purpose intended. The completion times ranged from a low of 10 minutes to a high of 15 minutes. The target time for completing the survey was 15 minutes or less which was achieved.

The Final Survey Instrument

After pretesting the initial survey instrument, the suggestions were reviewed and appropriate changes were incorporated into the final survey instrument. This resulting final survey instrument is found in Appendix A.

Sampling Procedures

A letter of transmittal/invitation was sent to each of the chief business officers and chief academic officers of institutions affiliated with the Community College Business Officers (CCBO) professional organization, an affiliate of the American Association of Community Colleges (AACC). There were 250 member institutions included in the survey process. A copy of the initial invitation/survey transmittal letter is found in Appendix B. Included with each letter was a copy of the five-page survey instrument and a self-addressed return envelope. Each potential respondent was asked to complete and return the survey within 15 days. The time request was included in the body of both the survey instrument and the letter of invitation to participate.

In order to obtain the largest possible response rate, a follow-up letter of reminder (found in Appendix C) was mailed to all that had not responded within an initial 21-day period. A third letter of request (identical to the first letter), along with a new copy of the survey instrument and another self-addressed return envelope, was sent to all potential respondents who had not responded to the first two appeals within the intervening six-week time period. All data were compiled from the survey instruments returned within a total 60-day period. Late arriving surveys, if they were received before final computations were completed, were included in the data base.

Study Limitations

There are numerous limitations inherent in this type of research. The sample population of chief academic officers and chief business officers is assumed to have expert knowledge of community college issues by virtue of their high level leadership positions, but there was no individual-specific information obtained to determine education, years in community college administration, or other demographic information. There were no controls relative to survey test conditions or any similar type data. Perhaps more important is the fact that there were no controls to limit bias on the part of the respondents or if, in fact, the survey was completed by the persons intended.

CHAPTER 4
ANALYSIS OF DATA AND FINDINGS

Introduction

The purpose of this study was to analyze the perceptions, beliefs, and attitudes of community college chief business officers and chief academic officers regarding institutional factors that may extend the time to degree or completion of a program for community college students at 250 selected community colleges located throughout the United States. A report of the analysis of the data collected concerning these institutional factors follows.

Data Collection

The collection of the data necessary to complete this analysis was obtained through the use of a survey instrument. The survey consisted of 38 variables that were selected after an extensive review of available literature on the subject, discussions with community college leaders, as well as a review of other similar studies (Brune, 1996). The 38 selected variables were divided into five categorical groups: (RA) resource allocation related variables, (FE) faculty effort and quality related variables, (CP) curricular and program related variables, (SS) student services and support related variables, and (AL) administrative and logistics related variables. In addition to the 38 specifically targeted variables, provision was made on the survey instrument for each respondent to make comments or suggest other variables that they felt were significant and were not covered in the main body of the survey (DV_{01}). The survey responses were calculated using a five-point Likert scale. The choices were as follows: 1= no contribution, 2= low contribution, 3= moderate contribution, 4= high contribution, and 5= strong contribution.

Description of the Respondents

The survey instrument was mailed to the chief business officers and chief academic officers of 250 selected community colleges that are members of the American Association of Community Colleges (AACC) as well as members of the Community College Business Officers (CCBO) organization. Of the 500 surveys initially mailed (250 to the chief business officers and 250 to the chief academic officers), as well as two subsequent mailings to those not responsive to the first or second request, there were useable responses from 159 community colleges. The resulting college return rate was 63.6%. There were responses from 152 chief business officers which resulted in a return rate of 60.8%. There were responses from 144 chief academic officers which resulted in a return rate of 57.6%. Of the responses returned there were 46 colleges ultimately used for the study because there were only 46 pairs of respondents that could be positively identified to specific institutions. Many respondents did not want to be identified by college and removed or obliterated the coding placed on their envelope.

Analysis of Survey Responses

The research questions posed by this study analyzed individual institutional variables and subscales of institutional variables which to some degree may contribute to extending community college student time to graduation as believed, or perceived, by community college chief business officers and chief academic officers. There were 38 individual variables included in the survey. The 38 selected individual variables were placed into five distinct categorical subscales. The five selected categories were (RA) resource allocation related variables, (FE) faculty effort and quality related variables, (CP) curricular and program related variables, (SS) student services and support related variables, and (AL) administrative and logistics related variables. Variables RA_1 through RA_{10} referred to resource allocation issues. Variables FE_1 through FE_{10} referred to faculty effort and quality related issues. Variables CP_1 through CP_4 referred to curricular and program related issues. Variables SS_1 through SS_8 referred to student services and support related issues. Variables AL_1 through AL_6 referred to administrative and logistics related issues.

Analysis of Individual Variable Responses for All Community Colleges Surveyed

Between the two groups surveyed, very few differences emerged in terms of which institutional variables chief business officers perceived as greater contributors to extending time to completion when compared to the perceptions of chief academic officers. The statistical details of each individual variable and subscale of variable is presented in Tables 1 through 8.

The Likert scale used for the survey measurement had a range of numeral 1 through numeral 5. The five points along the continuum are as follows: 1=no contribution, 2=low contribution, 3=moderate contribution, 4=high contribution, and 5=strong contribution.

Summary Tables

Tables 1 through 5 report a summary of the measures of central tendency (mean and grouped median scores), the number of valid responses (N), the measures of dispersion (standard deviation, standard error of the mean, and variance) for each of the 38 individual institutional variables resulting from the perceptions of the chief business officers and the chief academic officers that responded, and the combined scores for all responses received. The tables are arranged by the five categorical subscales of variables. The groups are administrative and logistics related variables (AL), curricular and program related variables (CP), faculty effort and quality related variables (CP), resource allocation related variables (RA), and student services and support related variables (SS).

There are a total of 19 individual variables with mean scores above 3.0 on the Likert scale indicating they are above the threshold for being greater than moderate contributors as established in the Likert scale criteria. Three of the variables are from the category of administrative and logistics related variables

Table 1

Comparative Descriptive Statistics For the Administrative and Logistics Related Variables (Chief Academic Officers, Chief Business Officers, and Totals)

Report

IDENTITY		AL01	AL02	AL03	AL04	AL05	AL06
Chief Academic Officer	Mean	2.96	3.78	3.65	2.76	2.57	3.35
	Std. Deviation	1.21	1.05	.97	1.14	1.05	1.12
	Grouped Median	3.07	3.90	3.67	2.69	2.55	3.37
	Std. Error of Mean	.18	.16	.14	.17	.15	.17
	Variance	1.465	1.107	.943	1.297	1.096	1.254
	N	46	46	46	46	46	46
Chief Business Officer	Mean	3.00	3.83	3.67	2.46	2.24	3.46
	Std. Deviation	1.17	1.06	1.08	.96	1.06	1.24
	Grouped Median	3.07	3.96	3.74	2.40	2.14	3.59
	Std. Error of Mean	.17	.16	.16	.14	.16	.18
	Variance	1.378	1.125	1.158	.920	1.119	1.543
	N	46	46	46	46	46	46
Total	Mean	2.98	3.80	3.66	2.61	2.40	3.40
	Std. Deviation	1.19	1.05	1.02	1.06	1.06	1.18
	Grouped Median	3.07	3.93	3.70	2.53	2.35	3.48
	Std. Error of Mean	.12	.11	.11	.11	.11	.12
	Variance	1.406	1.104	1.039	1.120	1.122	1.386
	N	92	92	92	92	92	92

(Table 1). The first is AL02 (the timing and sequencing of courses offered each semester) with a combined mean score of 3.80. The second variable is AL_{03} (the number and variety of course offerings each semester for the general education or liberal arts requirements, as well as any other mandated course requirements for programs offered) with a combined mean score of 3.66. The third and last variable within the subscale is AL_{06} (the nonscheduling of specific required transfer courses in a reliable sequence) having a mean score of 3.40. Both of the respondent groups rated them as greater than moderate contributors. The remaining variables within the subscale are perceived as being in the range of score for low to moderate contributors. There are none within the category that are perceived as noncontributing as the lowest individual mean score was 2.40 for the variable AL_{05} (the college grade forgiveness policy).

Within the subscale of curriculum and program related variables (Table 2), all of the variables meet the criteria to be considered above median contributors. Variable CP_{01} (knowledge base expansion [the rapid growth in the body of knowledge associated with education which increases the content and complexity of what must be taught in a course]) had a combined mean score of 3.48. Variable CP_{02} (degree requirements such as sequenced course obligations and other core curriculum requirements) had a combined mean score of 3.62. Variable CP_{03} (requirements placed on academic programs by federal, state, or local district governmental bodies that regulate or accredit the program requirements) scored a combined mean of 3.12, and variable CP_{04} (availability of adequate remedial services to properly prepare a student for successful college level studies) had a combined mean score of 3.88. Both of the respondent groups rated all of the curricular and program variables as being greater than moderate contributors.

Table 2

Comparative Descriptive Statistics For the Curriculum and Program Related Variables (Chief Academic Officers, Chief Business Officers, and Totals)

Report

IDENTITY		CP01	CP02	CP03	CP04
Chief Academic Officer	Mean	3.57	3.43	3.11	3.98
	Std. Deviation	1.00	1.17	1.12	.86
	Grouped Median	3.66	3.44	3.17	4.06
	Std. Error of Mean	.15	.17	.17	.13
	Variance	1.007	1.362	1.255	.733
	N	46	46	46	46
Chief Business Officer	Mean	3.39	3.80	3.13	3.78
	Std. Deviation	1.18	1.13	1.09	1.30
	Grouped Median	3.42	4.00	3.14	4.07
	Std. Error of Mean	.17	.17	.16	.19
	Variance	1.399	1.272	1.183	1.685
	N	46	46	46	46
Total	Mean	3.48	3.62	3.12	3.88
	Std. Deviation	1.09	1.16	1.10	1.10
	Grouped Median	3.56	3.72	3.16	4.06
	Std. Error of Mean	.11	.12	.11	.11
	Variance	1.197	1.337	1.205	1.205
	N	92	92	92	92

In the category of faculty effort and quality (Table 3) there are three institutional variables that are perceived as being higher than moderate contributors to extending student time to graduation. The first is FE_{05} (the percentage of faculty effort spent on academic advising) which had a combined mean score of 3.83. The second variable is FE_{06} (the percentage of faculty effort spent on instructional duties), which has a combined mean score of 3.59. The last higher than moderate contributor in the category is FE_{10} (insufficient faculty response to special population student needs) which has a total mean score of 3.90. Both groups of respondents were in agreement that the above-listed variables were higher than moderate contributors to extending time to program completion. The chief business officers rated the FE_{10} variable above the high contributor criteria with a mean score of 4.07. The variable FE_{01} (the percentage of faculty holding doctoral degrees) is rated below the low contributor criteria with a mean score of 1.65. The remaining variables within the category were perceived as lower than moderate contributors to extending time to graduation.

There are four individual variables within the category of resource allocation related issues (Table 4) that meet the criteria for identification as a greater than moderate contributor to extending community college student time to completion. The first in the category is RA_{02} (the percentage of resources invested in student counseling activities) which has a total mean of 3.27. The next variable in the category is RA_{06} (the faculty to student ratio) with a mean of 3.35. The third variable is RA_{09} (the average class size of required core courses) which has a combined mean of 3.14. The last variable within the category with a

Table 3

Comparative Descriptive Statistics For the Faculty Effort and Quality Related Variables (Chief Academic Officers, Chief Business Officers, and Totals)

Report

IDENTITY		FE01	FE02	FE03	FE04	FE05
Chief Academic Officer	Mean	1.65	2.46	2.46	2.33	3.83
	Std. Deviation	.79	1.35	1.22	1.43	1.12
	Grouped Median	1.57	2.32	2.41	1.96	4.00
	Std. Error of Mean	.12	.20	.18	.21	.17
	Variance	.632	1.809	1.498	2.047	1.258
	N	46	46	46	46	46
Chief Business Officer	Mean	1.65	1.93	2.00	2.37	3.83
	Std. Deviation	.90	1.06	1.10	1.39	1.00
	Grouped Median	1.53	1.76	1.82	2.05	3.87
	Std. Error of Mean	.13	.16	.16	.20	.15
	Variance	.810	1.129	1.200	1.927	.991
	N	46	46	46	46	46
Total	Mean	1.65	2.20	2.23	2.35	3.83
	Std. Deviation	.84	1.23	1.18	1.40	1.05
	Grouped Median	1.55	1.96	2.07	2.00	3.93
	Std. Error of Mean	8.80E-02	.13	.12	.15	.11
	Variance	.713	1.522	1.387	1.966	1.112
	N	92	92	92	92	92

Table 3--continued

Report

IDENTITY		FE06	FE07	FE08	FE09	FE10
Chief Academic Officer	Mean	3.59	2.13	2.91	2.57	3.74
	Std. Deviation	1.31	1.17	1.33	1.29	1.06
	Grouped Median	3.84	1.91	3.08	2.55	3.81
	Std. Error of Mean	.19	.17	.20	.19	.16
	Variance	1.714	1.360	1.770	1.673	1.130
	N	46	46	46	46	46
Chief Business Officer	Mean	3.59	2.26	2.65	2.50	4.07
	Std. Deviation	1.13	1.44	1.16	1.21	.95
	Grouped Median	3.76	1.84	2.70	2.43	4.16
	Std. Error of Mean	.17	.21	.17	.18	.14
	Variance	1.270	2.064	1.343	1.456	.907
	N	46	46	46	46	46
Total	Mean	3.59	2.20	2.78	2.53	3.90
	Std. Deviation	1.21	1.30	1.25	1.24	1.02
	Grouped Median	3.80	1.88	2.88	2.49	4.00
	Std. Error of Mean	.13	.14	.13	.13	.11
	Variance	1.476	1.698	1.557	1.548	1.034
	N	92	92	92	92	92

mean score giving it a higher than median status is RA_{10} (the limiting factors of the physical plant itself, such as available classroom space and other similar problems) which has a total mean of 3.21. All others within the resource allocation category are placed above the low contributor criteria but below the moderate contributor criteria. All respondents agreed on all elements of the category.

The last five individual variables meeting the required criteria for being higher than moderate contributors are from the student services and support related variables subscale. The first variable is SS_{01} (availability of adequate testing and placement capabilities) which has a combined mean score of 3.75. The second variable meeting the criteria is SS_{02} (percentage of resources invested in student services related activities) with a combined mean of 3.61. The third variable within the subscale is SS_{03} (admissions requirements [such as an open door policy] or lack of such requirements) which was selected as a higher than moderate contributor and has a total mean of 3.37. Variable SS_{07} (lack of response to special population students such as supplying the required level and variety of student services needs) is the fourth variable in the category and has a mean score of 3.58. The fifth and last variable in the subscale is SS_{08} (availability of adequate financial aid for all students that require assistance) which has a combined mean score of 3.88.

Table 6 reports a summary of the measures of central tendency (mean and standard deviation) and the number of valid responses (N), within each subscale representing the 38 individual institutional variables, resulting from the perceptions of the chief business officers and the chief academic officers that

Table 4

Comparative Descriptive Statistics For the Resource Allocation Related Variables (Chief Academic Officers, Chief Business Officers, and Totals)

Report

IDENTITY		RA01	RA02	RA03	RA04	RA05
Chief Academic Officer	Mean	2.48	3.11	2.33	2.72	2.59
	Std. Deviation	1.35	1.27	1.01	.98	1.09
	Grouped Median	2.29	3.37	2.33	2.72	2.56
	Std. Error of Mean	.20	.19	.15	.14	.16
	Variance	1.811	1.610	1.025	.963	1.181
	N	46	46	46	46	46
Chief Business Officer	Mean	2.41	3.43	2.02	2.72	2.72
	Std. Deviation	1.22	1.07	.98	.98	1.05
	Grouped Median	2.36	3.47	1.91	2.74	2.70
	Std. Error of Mean	.18	.16	.14	.14	.15
	Variance	1.492	1.140	.955	.963	1.096
	N	46	46	46	46	46
Total	Mean	2.45	3.27	2.17	2.72	2.65
	Std. Deviation	1.28	1.18	1.00	.98	1.06
	Grouped Median	2.33	3.42	2.12	2.73	2.64
	Std. Error of Mean	.13	.12	.10	.10	.11
	Variance	1.634	1.387	1.002	.952	1.130
	N	92	92	92	92	92

Table 4--continued

Report

IDENTITY		RA06	RA07	RA08	RA09	RA10
Chief Academic Officer	Mean	3.43	2.78	2.72	3.20	3.13
	Std. Deviation	1.36	1.23	1.24	1.15	1.15
	Grouped Median	3.63	2.86	2.80	3.33	3.21
	Std. Error of Mean	.20	.18	.18	.17	.17
	Variance	1.851	1.507	1.541	1.316	1.316
	N	46	46	46	46	46
Chief Business Officer	Mean	3.26	2.74	2.85	3.09	3.28
	Std. Deviation	1.20	1.12	1.19	1.17	1.24
	Grouped Median	3.25	2.71	2.81	2.93	3.29
	Std. Error of Mean	.18	.17	.18	.17	.18
	Variance	1.442	1.264	1.421	1.370	1.541
	N	46	46	46	46	46
Total	Mean	3.35	2.76	2.78	3.14	3.21
	Std. Deviation	1.28	1.17	1.21	1.15	1.19
	Grouped Median	3.44	2.78	2.81	3.16	3.25
	Std. Error of Mean	.13	.12	.13	.12	.12
	Variance	1.636	1.371	1.469	1.331	1.418
	N	92	92	92	92	92

responded. Each subscale is reported as a combined score for the 46 respondent pairs under study. The categorical subscales studied were administrative and logistics related variables (AL), curricular and program related variables (CP), faculty effort and quality related variables (FE), resource allocation related variables (RA), and student services and support related variables (SS).

Of the five subscale categories studied, there are three that have mean scores that fall above moderate contributor but below high contributor. The first categorical subscale is (AL) administrative and logistics with a paired mean score of 3.142 and a standard deviation of 1.0704. The second subscale is (CP) curricular and program with a paired mean score of 3.533 and a standard deviation of 1.1702. The last category is (SS) student services and support which has a combined mean score of 3.199 and a standard deviation of 0.9209. The remaining two categorical subscales scored in the low contribution range on the Likert scale.

Table 7 presents the α reliability of each categorical sub-scale for each respondent group based on the results of the 46 community colleges studied. The reliability, or internal consistency, is necessary because the five subscale dependent variables are based on item sums. Based on the item results, the indication is that the test instrument as a whole is reliable, and based on the categorical reliability it is justifiable to add the parts together to create the single variable.

Table 5

Comparative Descriptive Statistics For the Student Services and Support Related Variables (Chief Academic Officers, Chief Business Officers, and Totals)

Report

IDENTITY		SS01	SS02	SS03	SS04	SS05	SS06	SS07	SS08
Chief Academic Officer	Mean	3.74	3.52	3.39	2.74	2.70	2.15	3.52	3.85
	Std. Deviation	1.16	.96	1.22	1.00	1.15	1.01	1.01	.97
	Grouped Median	3.95	3.52	3.46	2.66	2.63	2.00	3.55	3.91
	Std. Error of Mean	.17	.14	.18	.15	.17	.15	.15	.14
	Variance	1.353	.922	1.488	.997	1.328	1.021	1.011	.932
	N	46	46	46	46	46	46	46	46
Chief Business Officer	Mean	3.76	3.70	3.35	3.02	2.80	1.98	3.63	3.91
	Std. Deviation	1.10	1.03	1.14	1.13	1.09	.98	1.16	1.13
	Grouped Median	3.88	3.79	3.29	2.93	2.72	1.85	3.72	4.09
	Std. Error of Mean	.16	.15	.17	.17	.16	.14	.17	.17
	Variance	1.208	1.061	1.299	1.266	1.183	.955	1.349	1.281
	N	46	46	46	46	46	46	46	46
Total	Mean	3.75	3.61	3.37	2.88	2.75	2.07	3.58	3.88
	Std. Deviation	1.13	.99	1.17	1.07	1.12	.99	1.08	1.05
	Grouped Median	3.91	3.65	3.38	2.79	2.68	1.93	3.63	4.00
	Std. Error of Mean	.12	.10	.12	.11	.12	.10	.11	.11
	Variance	1.266	.988	1.378	1.139	1.245	.985	1.170	1.095
	N	92	92	92	92	92	92	92	92

Table 6

Descriptive Statistics For Dependent Variable Categorical Subscales By Respondent Category For All 46 Paired Groups of Respondents

Respondent Identification	Subscale Variable	Mean	Standard Deviation	(N) Within Subscale
Chief Academic Officers	Administrative & Logistical	3.1776	0.8022	6 (AL 1-6)
	Curricular & Program	3.5380	0.7691	4 (CP 1-4)
	Faculty Effort	2.7717	0.7658	10 (FE 1-10)
	Resource Allocation	2.8478	0.8291	10 (RA 1-10)
	Student Services & Support	3.1485	0.7002	8 (SS 1-8)
Chief Business Officers	Administrative & Logistical	3.1087	0.7188	6 (AL 1-6)
	Curricular & Program	3.5272	0.9025	4 (CP 1-4)
	Faculty Effort	2.6848	0.7486	10 (FE 1-10)
	Resource Allocation	2.8348	0.7517	10 (RA 1-10)
	Student Services & Support	3.2496	0.6161	8 (SS 1-8)

Table 7

Internal Consistency Coefficients (Alpha Reliability) For the Two Respondent Groups by the Five Dependent Variable Subscales

Dependent Variable Subscale	(N) Within Variable	α Chief Academic Officers	α Chief Business Officers
Administrative & Logistical	6	0.8291	0.7313
Curricular & Program	4	0.7221	0.7667
Faculty Effort	10	0.8312	0.8515
Resource Allocation	10	0.9140	0.8600
Student Services & Support	8	0.7884	0.6839

Results of Hypotheses Testing

The dependent variables are the five categorical variable subscales. Subscale AL consists of six administrative and logistics related variables. Subscale CP contains four curriculum and program related variables. Subscale FE are the faculty effort and quality related issues with 10 variables. Subscale RA consists of 10 resource allocation related variables. The last subscale is SS containing the eight variables of student services and support related issues. The null hypotheses tested in this study are as follows:

1. H_0^1 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the administrative and logistical dependent variable subscale (containing six individual variables).

2. H_0^2 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the curricular and program dependent variable subscale (containing four individual variables).

3. H_0^3 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the faculty effort and quality dependent variable subscale (containing 10 individual variables).

4. H_0^4 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the resource allocation dependent variable subscale (containing 10 individual variables).

5. H_0^5 = There is no difference between the mean scores of chief academic officers and chief business officers when compared on the student services and support dependent variable subscale (containing eight individual variables).

The alpha level for rejection of the null hypotheses was set at the 0.05 level. The null hypotheses were tested by paired sample t-test. This method of analysis was chosen because it allows the detection of differences in the attitudes of the pairs of respondent groups by college regarding the individual variables and the dependent variable subscales.

There are five subscales (categories) of institutional factors under consideration as related to the issue of time to degree. The sub-scales investigated in this study are (RA) resource allocation related issues, (CP) curricular and program related issues, (SS) student services and support related issues, (AL) administrative and logistics related issues, and (FE) faculty effort and quality related issues.

Table 8

Paired Sample t-Test Results Contrasting the Two Respondent Groups Over the Five Dependent Variable Subscales That Correspond With the Five Hypotheses

Hypotheses	Dependent Variable	df	Computed t
H_0^1	Administrative & Logistical Academic/Business	45	0.437
H_0^2	Curricular & Program Academic/Business	45	0.063
H_0^3	Faculty Effort Academic/Business	45	0.655
H_0^4	Resource Allocation Academic/Business	45	0.078
H_0^5	Student Services & Support Academic/Business	45	-0.744

As shown in Table 8, there are no dependent variable subscales that are significant at the 0.05 level; therefore, all six null hypotheses fail to be rejected. There are, in fact, no statistically significant differences in the beliefs, attitudes, and perceptions of community college chief academic officers and chief business officers regarding factors that may contribute to extending community college student time to graduation.

Summary of the Findings

This study was designed to analyze the attitudes, perceptions, and beliefs of community college chief business officers and chief academic officers regarding institutional factors that may contribute to extending time to completion for students at community colleges in the United States. In order to investigate these factors, a survey instrument was developed which measured the perceived contribution that 38 individual institutional variables had on extending the time community college students take to graduate or complete their program. These variables were sub-scaled into five categories: (RA) resource allocation related issues, (FE) faculty effort and quality related issues, (CP) curricular and program related issues, (SS) student services and support related issues, and (AL) administrative and logistical related issues. This study ultimately surveyed chief business officers and chief academic officers at 159 community colleges and community college systems within the United States. There were 152 chief business officers and 144 chief academic officers that completed the survey. Of those surveys returned, there were 46 pairs of college leaders that could be linked as pairs within a college. The pairing was necessary in order to limit the Type I error during the statistical analyses. The data were analyzed by determining the means, frequency distributions, and standard deviations of the 38 individual institutional variables as well as the five dependent variable subscales.

Paired sample t-tests were conducted using the two types of respondents as the independent variables. The dependent variables were the five subscales of institutional variables.

There are a total of 19 individual variables with mean scores above 3.0 on the Likert scale, indicating they are above the threshold for being greater than moderate contributors as established in the Likert scale criteria. The variables that were identified are as follows:

Variable AL_{02}: the timing and sequencing of courses offered each semester (mean=3.80).

Variable AL_{03}: the number and variety of course offerings each semester for the general education/liberal arts requirements, as well as any other mandated course requirements for programs offered (mean=3.66).

Variable AL_{06}: the nonscheduling of specific required transfer courses in a reliable sequence (mean=3.40).

Variable CP_{01}: the knowledge-base expansion, or the rapid growth, in the body of knowledge associated with education that increases the content and complexity of what must be taught in a course (mean=3.48).

Variable CP_{02}: the degree requirements (other than the number of credit hours required to graduate) such as sequenced course obligations and other core curriculum requirements (mean=3.48).

Variable CP_{03}: requirements placed on academic programs by federal, state, or local district governmental bodies that regulate or accredit the program requirements (mean=3.12).

Variable CP_{04}: the availability of adequate remedial services to properly prepare a student for successful college level studies (mean=3.88).

Variable FE_{05}: the percentage of faculty effort spent on academic advising (mean=3.83).

Variable FE_{06}: the percentage of faculty effort spent on instructional duties (mean=3.59).

Variable FE_{10}: insufficient faculty response to special population students (mean=3.90).

Variable SS_{01}: availability of adequate testing and placement capabilities to place students in classes for which they are not properly prepared (mean=3.75).

Variable SS_{02}: the percentage of resources invested in student services related activities including, but not limited to, counseling, orientation, and financial aid (mean=3.61).

Variable SS_{03}: admissions requirements or lack of defined policy (mean=3.37).

Variable SS_{07}: lack of response to special population students, such as supplying the required level and variety of student services needs (mean=3.58).

Variable SS_{08}: the availability of adequate financial aid for all students that require assistance (mean=3.88).

Variable RA_{02}: the percentage of resources invested in student counseling activities (mean=3.27).

Variable RA_{06}: the faculty to student ratio (mean=3.35).

Variable RA_{09}: the average class size of required core courses (mean=3.14).

Variable RA_{10}: the limiting factors of the physical plant itself, such as available classroom space and other similar problems (mean=3.21).

In the analysis of subscales of institutional variables, there were no significant differences detected. Table 6 presents the descriptive statistics for the five subscales of descriptive variables. There is only one category that was perceived to approach being a high contributor to extending community college time to completion. That category is curricular and program related variables which has an aggregate mean score of 3.53. All other categorical sub-scales of variables were perceived to be more in the range of moderate to high contributors. No categorical subscales were perceived as noncontributors.

In addition to the rating scale for the individual variables, a provision was made in the survey instrument for a descriptive variable (DV_{01}) allowing the respondents to comment in a general way or suggest other potential variables if they desired to do so. The DV_{01} comments are not included in the numerical statistics related to the 38 individual variables or in the five subscales of variables but are listed in Table 9. No comments or suggestions received were excluded.

Although this study only stressed institutional factors that may affect student time to graduation, the qualitative descriptive variable (DV_{01}) comments indicated that community college chief business officers and chief academic officers considered both institutional and student factors as contributors to extending time to graduation.

Table 9

Respondent Comments (DV_{01})

1. The uncertainty of goal upon entry, resulting in change(s) in major area of study.
2. Quality of student life on campus continues as a major determinant in student completion of degree.
3. Responses left blank are mostly not applicable to my institution. Most of the time the graduation time is extended due to events beyond an institution's control. In most of our public institutions everything is pretty much well established and there is very little flexibility allowed in time to graduation. The rigid point of view allows for very little extension of time duration.
4. The financial aid restriction regarding PELL requiring the beneficiary to be degree seeking.
5. Although I completed the survey I found the wording flawed and would question the validity and reliability of the results.
6. Colorado needs to quit worrying about salaries and benefits (they are adequate), and put more dollars into equipment and computers, (line item if necessary).

Table 9—continued

7. Inadequate institutional response to non-traditional students, (i.e. six-day class scheduling, discounted tuition and fees for mid-afternoon classes).

8. Because of the unique nature of the community college student, I feel that the primary issues that relate to the extension of time to graduate are those related to "personal" concerns, (e.g., daycare, transportation, study skills, and pre-college academic courses).

9. Non-traditional students work and have families. Each year it seems that the percentage of students going part-time is increasing. In many cases it appears that completing a degree in the shortest period of time is not a student priority. Today's student seems to view the world and education somewhat differently than students did in the past. In our case I think that outside forces are the most important factor in a student's decision on how long they will take to complete a degree or graduate, rather than internal or college related factors.

10. In some community colleges the lack of required sequencing of courses has contributed to extending the time to graduate. If a sequence were required for cross-related courses, such as math-to-science or English composition-to-communications, it would perhaps functionally shorten time to graduation.

11. The overriding element that affects how long a student takes to get through their program and/or complete a AA/AS degree is the lack of an effective advisement/career counseling instruction process to reinforce the concept of success in students. Our state has chosen to force the completion date on many students by saying "complete within this specific time frame or receive no financial support" (to the student or the institution). This is an inappropriate way to deal withthe problem. Perhaps it would be better to intervene with a student early to help set realistic educational goals.

12. The most important factor is the student desire and ability to attend college full-time.

13. Lack of proper expectations. Sticking to standards. Monitoring.

14. The most important variable is the degree of under-preparation of the student entering college. Another variable is the definition that going to college without having at least some idea of a major is acceptable. There needs to be greater career exploration while still in high school.

Table 9—continued

15. The most important variable is the degree of under-preparation of the student entering college. Another variable is the definition that going to college without having at least some idea of a major is acceptable. There needs to be greater career exploration while still in high school.

16. The major reason for our students extending the time to graduation is money. Many lack the ability to pay for the 16 credits per semester that is required in order to finish in a two-year time frame. Family and/or work responsibilities also do not give our students the time required to take 5 or 6 courses per semester.

17. The overwhelming factor in time to degree is student behavior. Many if not most, community college students have family and job obligations that preclude them from carrying a full load of course work. This is the leading attraction of the community college. Community colleges were created to serve students of this type.

18. In my opinion, the most important factors that contribute to extending time to degree are personal/financial factors in students' lives. Such things as finances, family considerations, jobs and job changes, divorces, moving, etc., have a much greater impact on students' academic progress than the variables in the survey.

19. The major factors affecting student time to graduation are personal reasons that may be financial, job requirements, and other family obligations.

20. In my opinion, the strongest influences on student length of time to graduation are the student's own personal situation. My guess is the issue is a compound one, (e.g., the student must work and because of the work schedule the number of course offerings or sections are limited, and faculty or advisors are not available to help the student with scheduling or graduation requirements).

21. The number of students requiring remediation is too great.

22. Scheduling course offerings and full-time faculty contact outside the classroom appears to have the most importance.

Table 9—continued

23. The student advisement process. Selection of a major. The required placement policy. The number of prerequisites in the general education program. I fail to see the relevance of the faculty effort items. Students usually do not care about the faculty qualifications other than if they are good teachers of the subject matter.

24. The percentage of effort in creating a culturally sensitive campus climate. The ability of the college to give the student a sense of belonging. A large contributor to extending the time required to graduate is that of an external, and/or, uncontrollable issue (i.e., employment status, family issues, relocating, etc).

25. Our best recruitment and subsequent retention tool is an outstanding teacher. Not necessarily the one who gives the most "A's" or fewest "F's"; but rather the one that loves to teach and loves to be an integral part of a student's learning and respects the student as an adult who has many obligations to balance.

26. You need to factor in student motivation and goals.

27. There are no incentives to reduce time to degree.

28. Scheduling course offerings and full-time faculty contact outside of the classroom appears to be the most important factor.

29. We are an open door campus with non-binding placement test results and non-binding advising (which is taken to heart); both of which seems to cause the most delays.

30. Lack of administration response to (and support of) needs of non-traditional students, especially for flexible scheduling, on-line instruction, televised courses, self-paced instruction, weekend college, etc. Also, local employers' lack of support for college education (i.e., not providing incentives for students [pay differentials for those with degrees and certificates], release time to attend classes, etc). Faculty to student ratio should be a maximum of 1:20. There should be at least 70% full-time faculty. Faculty advising should be a much higher priority.

31. Too many adjunct faculty members that have no access to computers, have no voice, and have no development opportunities.

Table 9—continued

32. Top heavy administrations take away resources from the instructional side.

33. Too many mandated instructional requirements from professional organizations and/or state boards.

34. Too many developmental courses that drain resources from college transfer and professional courses.

35. Incompetent administration and too many "yes" persons below the President. There seems to be too many administrators that do not understand higher education.

36. Too many administrators that are stuck on the way things have been done in the past to guide them on how they view the future.

37. Too many administrators that are only concerned with the "bottom line" rather than what is in the best interest of the student. They seem to forget that the student is our sole reason for existing.

Perhaps as important as the variables that are believed to contribute in some way to extending time to graduation are those factors that were identified as having little or no effect on extending community college time to completion. There were 10 such variables identified. Those with a majority of respondents scoring them a 1 or 2 on the Likert scale were AL_{04} (50%), AL_{05} (55.4%), FE_{01} (83.7%), FE_{02} (62%), FE_{03} (60.9%), FE_{04} (62%), FE_{07} (70.7%), RA_{01} (53.3%), RA_{03} (62%), and SS_{06} (72.8%).

CHAPTER 5
CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH

Introduction

The purpose of this study was to examine the perceptions, attitudes, and beliefs of community college chief business officers and community college chief academic officers as to which, if any, individual institutional factors or subscales of institutional factors may contribute to extending community college student time to graduation. A secondary purpose was to determine if any of the resulting statistically significant institutional factors had significant differences in mean scores when compared individually or as a subscale.

Conclusions

Composite of Perceptions of Significant Individual Institutional Factors

Community college chief academic officers and chief business officers surveyed rated as high to strong contributors (with a score of 4 or 5 on the survey) to extending time to graduation the following 14 individual institutional factors representing all five subscales of variables. From the curricular and program related issues subscale there were three variables with a majority of respondents scoring them with a 4 or 5. The first variable in the subscale was (CP_{01}) knowledge base expansion [the rapid growth in the body of knowledge associated with education that increases the content and complexity of what must be taught in a course]) which was selected by 53.3%. The second variable within the curricular and program subscale was (CP_{02}) degree requirements [other than the number of credit hours required to graduate] such as sequenced course obligations and other core curriculum requirements) which was selected by 57.6% of all respondents. The last variable in the subscale was (CP_{04}) the availability of adequate remedial services to properly prepare a student for successful college level studies which was selected by 70.7% of the respondents. The second subscale was administrative and logistical related issues, also with three variables scored with a majority of 4 or 5. Variable AL_{02}, the timing and sequencing of courses offered each semester, was chosen by 67.4% of the respondents. The variable AL_{03}, the number and variety of course offerings each semester for the general education/liberal arts requirements as well as any other mandated course requirements for programs offered, was picked by 57.6% of all respondents. The last variable within the subscale was AL_{06}, the non-scheduling of specific required transfer courses in a reliable sequence, which was selected by 50% of all respondents. The next subscale of variables was faculty effort and quality with three variables rated a 4 or 5 by a majority of the respondents. The first variable in the subscale, (FE_{05}) the percentage of faculty effort spent on academic advising, was chosen by 67.4% of the respondents. The second variable was FE_{06}, the percentage of faculty effort spent on instructional duties, which was scored a 4 or 5 by 66.3% of survey participants. The last variable in the subscale was (FE_{10}) an insufficient faculty response to special population student needs, which was considered to play a greater than average role in extending time to degree completion by 64.2% of the respondents. The fourth subscale with an institutional factor that was rated a major contributor to increasing time to degree was resource allocation related issues with variable RA_{02} (the percentage of resources invested in student counseling activities) which was selected by 50% of the respondents. The fifth and last subscale with greater than average contributors was student services and support related issues with four variables. The first, (SS_{01}) the availability of adequate testing and placement capabilities [placement of students in classes for which they are not properly prepared], was chosen by 65.2% of the respondents. The next, (SS_{02}) the percentage of resources invested in student services related activities [this includes, but is not limited to, counseling, orientation, and financial aid], was selected by 57.6% of all participants. The third variable in the subscale was SS_{07} (the lack of response to nontraditional student needs, such as supplying the necessary kinds and levels of services unique to special population students) which was picked by 54.3% of the respondents. The last variable rated a 4 or 5 by a majority of those participating was SS_{08}, (the availability of adequate financial aid for all students that require assistance) which was chosen by 68.5% of the respondents. These data suggest that curricular and program related issues are believed to be the leading factors in extending time to graduation at community colleges which is in agreement with much prior research (Cohen, 1994; Fryer, Berman, Weiler, & Clawson, 1990; Grubb, 1991). In fact, curricular and program related issues were identified as a major issue dating back at least 12 years (Pascarella, Smart, & Ethington, 1986; Richardson & Bender, 1987). The fact that this study still identifies curricular and program issues as the most important factor in extending student time to graduation is, perhaps, an indication that not enough has been done.

Student services and support related issues, as rated by community college chief business officers and chief academic officers, is rated as the second most important area of concern. A study by Carroll (1988) also indicated that student services was an important issue. In direct contradiction to this study, however, were other studies (Likert, 1989; Stoecker, Pascarella, & Wolfle, 1988) that indicated student services related issues played such a small part in the equation that there should be little concern. Any difference in the quality of services was thought to be perceived rather than real. In that same line of thought, Astin (1985) reasoned that institutional quality issues may be misleading, especially when based on resources, outcomes, or reputations. The need for services to handle ill-prepared students, as identified in this study, was also indicated in prior studies (Ballesteros, 1988; Clowes, Hinkle, & Smart, 1986) which showed that more than half of high-school students planned to enter college, but only 35% were taking college preparatory classes. Other studies also confirmed the fact that poor preparation has a negative impact on degree attainment (Kinnick & Kempner, 1988; Smith & Szeszycki, 1990; Webb, 1989). It seems there is enough data to support a recommendation for increased student services. All of the individual institutional variables that were rated as the stronger contributors are closely related in theme (student services) even though they come from each of the five separate groups of factors studied.

There were 10 individual institutional variables perceived to have a very small influence on time to completion. They are, from the faculty effort and quality subscale, FE_{01} (the percentage of faculty holding doctoral degrees), FE_{02} (the percentage of faculty holding masters degrees), FE_{03} (the percentage of faculty holding a baccalaureate degree), and FE_{07} (the percentage of faculty effort spent on research or other noninstructional duties). Also, from the resource allocation related variable subscale is RA_{03} (the percentage of resources invested in salaries and benefits for administrative management and other non-instructional support). The last noncontributor was SS_{06} (the availability of nearby, and/or, college sponsored housing).

Participating chief academic officers perceived as the stronger contributors the same variables as the chief business officers. That determination was proven by the failure to reject the six null hypotheses. The same was true with those variables that were perceived as noncontributors.

This study was designed to parallel closely the Brune (1996) study by applying many of the same issues to the community college environment. While the Brune study researched the perceptions of eight college department heads within a major southeastern research university, this study was limited to the chief academic officers and chief business officers within the 159 community colleges throughout the United States that chose to respond. Based on the results of both studies, a number of parallels can be drawn.

Although a direct comparison is impossible because the individual variables are not identical within each subscale, there is very little difference in this study and the Brune study when comparing the administrative and logistical related issues, the faculty effort and quality related issues, and the resource allocation issues. There was, however, a difference in the category of curricular and program related issues. This study indicated that the subscale of curricular and program issues was a major contributor to extending time to graduation (the strongest contributor). The Brune study concluded that the curricular and program related issues, as a subscale, was only a moderate contributor. All of the prior study categorical subscales scored in the moderate range. The prior study did not have a student services and support related variable category so no comparison could be made.

Composite of Perceptions of Significant Subscales of Institutional Factors

The respondents of this study clearly indicated that the category of greatest significance in their perception is curricular and program related issues. It was likewise very clear that they perceived faculty effort and quality related issues to be the least important subscale of factors contributing to extending time to graduation for community college students. As with the individual factors, the subscales of factors were scored very consistently by both respondent groups.

Composite of Respondent Written Comments (DV_{01})

It is interesting to note that in spite of the results of the survey, which indicate several areas in need of improvement, the written comments were quite consistent in attributing most of the problems having the greater effect on time to graduation to those that are caused by the students themselves. The most common comment theme was that student personal problems are the greatest single cause for extending time to graduation.

Implications

The results of this study suggest that our community colleges suffer from the effects of a number of built-in barriers to student success with regard to completion within a prescribed number of credit hours or semesters. All of the barriers do not apply to all community colleges, and there may even be some colleges where none apply. However, based on the perceptions of those surveyed, there seem to be many areas that are in need of attention or improvement.

There is widespread agreement among the respondents that there is insufficient attention paid to student advisement and counseling (see variables SS_{02}, the percentage of resources invested in student services related activities [including, but not limited to, counseling, orientation, and financial aid], and FE_{05}, the percentage of faculty effort spent on academic advising). This would include academic alternatives as well as career counseling. Prior studies (Ballesteros, 1988; Carroll, 1988; Clowes, Hinkle, & Smart, 1986; Kinnick &

Kempner, 1988; Smith & Szeszycki, 1990; Webb, 1989) also indicated that a lack of a number of student services activities will have a negative impact on degree attainment within reasonable time limits.

The policies with regard to residence requirements, college transfer options, the registration process, lack of flexibility for payment of fees and tuition, and too rigid drop and add policies are all perceived to be barriers to student success, which over an academic career can adversely affect the length of time it takes to complete a program of study (see variable SS_{03}, admissions requirements, or lack of such requirements [such as an open-door policy or stringent prerequisite requirements]). In support of this conclusion, studies by Richardson and Bender (1987) and Pincus and DeCamp (1989) also indicated that loss of credits in transfer from one community college to another or transfer from one program to another played an important part in extending a student's time to graduation. Those studies indicated that as many as 58% of transfer students are losing 25% of their credit hours in the transfer process. As a direct result of the transfer process, students are twice as likely to have an extended time to graduation as nontransfer students. In a 1990 study conducted by the City Colleges of Chicago, it was shown that the average transfer graduate earned 35% more credit hours than did nontransfer students. It must be pointed out, though, that there are differences of opinion as to who is at fault in credit loss problems (Dougherty, 1992). In addition, there seems to be a consensus of perception that too many students are entering community college ill prepared to do college level work, and at least some community colleges do not have adequate resources available to provide the level of remedial services required to meet the need (see variable CP_{04}, the availability of adequate remedial services to prepare a student properly for successful college level studies, and variable SS_{01}, the availability of adequate testing and placement capabilities [placing students in classes for which they are not properly prepared]). There is also a lack of comprehensive student tracking, in some institutions, which can result in a student getting to the end of a program only to discover that more classes are needed in order to meet all graduation requirements (see variables AL_{02}, the timing and sequencing of courses offered; AL_{03}, the number and variety of course offerings each semester for the general education/liberal arts requirements, as well as well as any other mandated course requirements for the programs that are offered; and variable CP_{02}, the degree requirements [other than the number of credit hours required to graduate] such as sequenced course obligations and other core curriculum requirements). One of the most widespread barriers is the lack of adequate financial aid for all students who are in need (see variable SS_{08}, the availability of adequate financial aid for all students that require assistance). It appears that sometimes individual college policies, or lack of clarity within a policy, can lead to extending time to graduation (see AL_{04}, the nature of drop/add/withdrawal policies, and AL_{05}, the grade forgiveness policy). A newer problem is a college's unwillingness to provide more flexible class scheduling to meet the new age community college student profile (see variables AL_{02}, the timing and sequencing of courses offered each semester; AL_{06}, the nonscheduling of specific required transfer courses in a reliable sequence, and SS_{07}, the lack of response to non-traditional student needs such as supplying the necessary kinds, and levels, of service unique to special population students); and finally, an inability, or unwillingness, to include student input into the decision-making process on issues directly affecting students (see Table 9, respondent comments).

Recommendations for Improvement

There are a number of things that can be done administratively in an effort to improve student success and completion in our nation's community colleges. One thing that could have a major impact would be for institutions to revisit their mission statement and revise or adopt an institutional program plan that is designed for the flexible nature of our times. Community college students today have different needs, and different obstacles to overcome, than they did a generation ago. The single most important subscale was curricular and program related. It is imperative that community colleges adopt policies to track student progress more closely and provide more comprehensive counseling and advisement to keep them on track to graduate within prescribed limits (as indicated in Table 5, student services and support results). There should be more flexibility in acceptance of transfer credit between institutions and between programs within an institution (see Implications and related references in the preceding paragraph). One vehicle that is in place already at most institutions is competency examinations. If there were greater publicity about the use of competency or experiential testing, perhaps more students would make use of them and ultimately graduate sooner (see Table 2, variable CP_{04}, and Table 5, variable SS_{01}).

Greater attention to individual program design should be given so there can be clearer understanding of program choices in an institution's catalog and other published materials. All too often, students are left to fend for themselves as far as their understanding of program requirements (see Table 4, variable RA_{02}; Table 3, variable FE_{05}; Table 2, variables CP_{02} and CP_{03}; and Table 5, variable SS_{02}). In the long run, such problems can lead to extended time to graduation. Although many institutions have adopted new registration procedures, there are still some that could benefit from more up-to-date, computer-and/or telephone-enhanced registration policies and procedures.

Greater attention should be paid to class scheduling in an effort to accommodate the newer class of student that can only attend school in the evening or on weekends (see Table 1, variables AL_{01}, AL_{02}, AL_{03}, and AL_{06}). Perhaps classes could be developed to meet the individual student's needs rather than meeting the needs of the masses. Such classes could be an intensive evening or weekend experience rather than the traditional Monday through Friday class approach (see Table 3, variable FE_{10}, and Table 5, variable SS_{07}).

The development of comprehensive, creative financial aid packages, perhaps tied to student progress standards, would encourage students to proceed to graduation in a more timely manner. In line with more creative financial aid packages, the creation of incentive scholarship programs tied to other financial aid would perhaps encourage students to continue on to the university level. Such creative aid could be in the form of a reward for graduating from community college within a prescribed time or credit hour limit. The creation of meaningful job placement programs tied into financial aid and in conjunction with program requirements would also assist in achieving timely student graduation (see Table 5, variable SS_{08}).

Finally, the creation of student focus group meetings to help determine student needs and concerns would identify other specific areas needing attention at individual institutions as each school will have their own unique list of factors to address.

Suggestions for Future Research

This research has provided a broad-based analysis of the perceptions, beliefs, and attitudes of community college chief business officers and chief academic officers regarding institutional factors that may contribute to extending time to graduation for community college students in the United States.

Further study investigating the perceptions of other community college leaders, faculty, and students through the use of similar but more refined survey techniques, and through the use of in depth interview of the subjects in question would have the potential to identify additional significant factors. With the application of the results of this and other further studies, information can be identified that will aid in changing institutional attitudes and policies that will ultimately facilitate speedier student time to degree completion.

This study, as in the Brune, (1996) study, identified curricular and program related issues as the most significant in extending student time to graduation. As such, it would be a valuable addition to this, and the Brune study, to evaluate in depth the process by which community college programs are selected and the curriculum is determined. This would include investigating ways to improve determination of what programs are offered as well as specific course content and the sequencing of courses within a program.

It is a fact of life that today everyone involved in the education process needs to be more concerned with how best to use the limited resources available as well as improving the student end result. Given the significance of those two factors, it is indicative of the necessity for further research in this area.

APPENDIX A
SURVEY INSTRUMENT

AN ANALYSIS OF INSTITUTIONAL FACTORS THAT CONTRIBUTE TO EXTENDING COMMUNITY COLLEGE STUDENT TIME TO GRADUATION

Resource Allocation Variables (RA).

In periods of financial constraints and budget cuts, allocation of available funds and distribution of resources including equipment, supplies, and manpower may impact the institution's ability to graduate students in a timely manner. On a scale of (1) to (5) please rate the degree to which the following resource allocation issues, in your view, ***contribute to extending the time a community college student takes to graduate with an Associates Degree***

:

No Contribution		Moderate Contribution		Strong Contribution
1	**2**	**3**	**4**	**5**

RA$_{01}$. ____. The percentage of resources invested in salaries and benefits for faculty.

RA$_{02}$. ____. The percentage of resources invested in student counseling activities.

RA$_{03}$. ____. The percentage of resources invested in salaries and benefits for administrative management and other non-instructional support staff.

RA$_{04}$. ____. The percentage of resources invested in operating expenses, (this includes, but is not limited to supplies, travel allowances, computer hardware and software, and other contractual costs).

RA$_{05}$. ____. The percentage of resources dedicated to capital outlay, (this includes, but is not limited to equipment and other furnishings).

RA$_{06}$. ____. The faculty student ratio.

RA$_{07}$. ____. The percentage of full-time faculty employed.

RA$_{08}$. ____. The percentage of part-time and/or adjunct faculty employed.

RA$_{09}$. ____. The average class size of required core courses.

RA$_{10}$. ____. The limiting factors of the physical plant itself, such as available classroom space and other similar problems.

Faculty Effort and Quality Variables (FE).

Previous studies have shown that student contact with faculty can influence time to graduation. On a scale of (1) to (5) please rate the degree to which the following faculty effort and quality issues, in your view, ***contribute to extending the time a community college student takes to graduate with an Associate Degree.***

No Contribution		Moderate Contribution		Strong Contribution
1	**2**	**3**	**4**	**5**

FE$_{01}$. ____. The percentage of faculty holding a doctoral degree.

FE$_{02}$. ____. The percentage of faculty holding a masters degree.

FE$_{03}$. ____. The percentage of faculty holding a bachelors degree.

FE$_{04}$. ____. The percentage of faculty holding no degree.

FE$_{05}$. ____. The percentage of faculty effort spent on academic advising.

FE$_{06}$. ____. The percentage of faculty effort spent on instructional duties.

FE$_{07}$. ____. The percentage of faculty effort spent on research, or other non-instructional duties.

FE$_{08}$. ____. The number of courses taught each semester by full-time faculty.

FE$_{09}$. ____. The number of courses taught each semester by part-time and adjunct faculty.

FE$_{10}$. ____. Insufficient faculty response to special population student needs.

Curricular and Program Variables (CP).

In some academic fields the technical requirements for an Associates Degree have increased to the point where it is impossible to complete the general education requirements, as well as the major requirements, in the normal two-year time span (60 semester hours). This is due to the rapid expansion of the knowledge base, professional requirements, or expanded certification/licensing requirements. On a scale of (1) to (5) please rate the degree to which the following resource allocation issues, in your view, ***contribute to extending the time a community college student takes to graduate with an Associate Degree.***

No Contribution		Moderate Contribution		Strong Contribution
1	**2**	**3**	**4**	**5**

CP$_{01}$. ____. Knowledge base expansion, (the rapid growth in the body of knowledge associated with education that increases the content and complexity of what must be taught in a course).

CP$_{02}$. ____. Degree requirements, (other than the number of credit hours required to graduate), such as sequenced course obligations and other core curriculum requirements.

CP$_{03}$. ____. Requirements placed on academic programs by federal, state, or local district governmental bodies that regulate or accredit the program requirements.

CP$_{04}$. ____. Availability of adequate remedial services to properly prepare a student for successful college level studies.

Student Services and Support Related Variables (SS).

Services offered to student in support of their educational goals can have a major impact on how long it takes to graduate. On a scale of (1) to (5) please rate the degree to which the following resource allocation issues, in your view, ***contribute to extending the time a community college student takes to graduate with an Associate Degree.***

No Contribution		Moderate Contribution		Strong Contribution
1	**2**	**3**	**4**	**5**

SS_{01}. ____. The availability of adequate testing and placement capabilities (placement of students in classes for which they are not properly prepared).

SS_{02}. ____. Percentage of resources invested in student services related activities (this includes, but is not limited to, counseling, orientation, and financial aid).

SS_{03}. ____. Admissions requirements, or lack of such requirements, (such as a open door policy, or stringent prerequisite requirements).

SS_{04}. ____. Availability of child care facilities.

SS_{05}. ____. Availability of transportation services.

SS_{06}. ____. Availability of nearby, and/or, college sponsored housing.

SS_{07}. ____. Lack of response to non-traditional student needs, such as supplying the necessary kinds and levels of service unique to special population students.

SS_{08}. ____. The availability of adequate financial aid for all students that require assistance.

Administrative and Logistics Related Variables (AL).

Facility and scheduling challenges can significantly impact time to graduation. On a scale of (1) to (5) please rate the degree to which the following resource allocation issues, in your view, ***contribute to extending the time a community college student takes to graduate with an Associate Degree.***

No Contribution		Moderate Contribution		Strong Contribution
1	**2**	**3**	**4**	**5**

AL$_{01}$. ____. Scheduling of classroom space, (size and number of classrooms and/or seats available).

AL$_{02}$. ____. The timing and sequencing of courses offered each semester.

AL$_{03}$. ____. The number and variety of course offerings each semester for the general education/liberal arts requirements as well as any other mandated course requirements for programs offered.

AL$_{04}$. ____. The college drop, add, and withdrawal policies.

AL$_{05}$. ____. The college grade forgiveness policy.

AL$_{06}$. ____. Non-scheduling of specific required transfer courses in a reliable sequence.

Descriptive Variable (DV$_{01}$).

The descriptive variable is optional and is intended for commentary that can address issues of each participant's choice, or to add factors that are not covered in the main survey body. It can also be used to address items or issues that are unique to a specific community college, or state system.

DV$_{01}$.

APPENDIX B
FIRST COVER LETTER FOR SURVEY

January 10, 1997

Dear Colleague:

On behalf of the Institute of Higher Education at the University of Florida in cooperation with the Community College Business Officers national office at the University of Florida, this letter comes to encourage your support of research on institutional factors that contribute to extending community college student time to graduation. We would appreciate your assistance by completing the enclosed questionnaire and returning it to us no later than January 31, 1997. A self-addressed envelope is included with the questionnaire for your convenience.

The research project pertains to institutional factors that contribute to extending time to graduation at community colleges as reported by chief business officers at selected institutions. Recognizing the important role that all of you play in the successful operation of community colleges, we expect the results of this research to provide direction for ways to shorten the time to completion of community college students nationally.

All questionnaire responses will be recorded anonymously, and will be handled with strict confidentiality. In order to maintain confidentiality it is requested that you not sign the questionnaire, or identify you in any way.

Thank you in advance for your support of this important research. The Institution of Higher Education will be cooperating with the CCBO to disseminate the research findings as soon as the project is complete.

Cordially,

Dale F. Campbell Director and Professor, Institute of Higher Education, Executive Director, CCBO University of Florida	J. R. Cooper, Principal Investigator Graduate Assistant/Doctoral Candidate University of Florida Associate Executive Director, CCBO

APPENDIX C
SECOND COVER LETTER FOR SURVEY

February 15, 1997

Dear Colleague:

On behalf of the Institute of Higher Education at the University of Florida, in cooperation with the Community College Business Officers national office at the University of Florida, this letter comes as a reminder to encourage your support of research on institutional factors that contribute to extending community college student time to graduation. We would appreciate your assistance by completing the survey previously mailed to you, and returning it to us no later than February 28, 1997. A self addressed envelope was included with the survey for your convenience.

The research project pertains to institutional factors that contribute to extending time to graduation at community colleges as reported by chief business officers at selected institutions. Recognizing the important role that all of you play in the successful operation of community colleges, we expect the results of this research to provide direction for ways to shorten the time to completion of community college students nationally.

Thank you in advance for your support of this important research. The Institute of Higher Education will be cooperating with CCBO to disseminate the research findings as soon as the project is complete. You can be assured that all survey responses will be recorded anonymously, and will be handled with strict confidentiality.

Cordially,

Dale F. Campbell
Director and Professor,
Institute of Higher Education,
Executive Director, CCBO
University of Florida

J. R. Cooper, Principal Investigator
Graduate Assistant/Doctoral Candidate
University of Florida
Associate Executive Director, CCBO

APPENDIX D
THIRD COVER LETTER FOR SURVEY

March 15, 1997

Dear Colleague:

On behalf of the Institute of Higher Education at the University of Florida in cooperation with the Community College Business Officers national office at the University of Florida, this letter comes to encourage your support of research on institutional factors that contribute to extending community college student time to graduation. We would appreciate your assistance by completing the enclosed questionnaire and returning it to us no later than April 15, 1997. A self-addressed envelope is included with the questionnaire for your convenience.

The research project pertains to institutional factors that contribute to extending time to graduation at community colleges as reported by chief business officers at selected institutions. Recognizing the important role that all of you play in the successful operation of community colleges, we expect the results of this research to provide direction for ways to shorten the time to completion of community college students nationally.

All questionnaire responses will be recorded anonymously, and will be handled with strict confidentiality. In order to maintain confidentiality it is requested that you not sign the questionnaire, or identify you in any way.

Thank you in advance for your support of this important research. The Institution of Higher Education will be cooperating with the CCBO to disseminate the research findings as soon as the project is complete.

Cordially,

Dale F. Campbell Director and Professor, Institute of Higher Education, Executive Director, CCBO University of Florida	J. R. Cooper, Principal Investigator Graduate Assistant/Doctoral Candidate University of Florida Associate Executive Director, CCBO

REFERENCES

Adelman, C. (1992). The way we are: The community college as American thermometer. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

Adelman, C. (1994). Lessons of a generation. San Francisco: Jossey-Bass, Inc., Publishers.

Alba, R. D., & Lavin, D. E. (1981). Community colleges and tracking in higher education. Sociology of Education, 54(4), 223-237.

Alderfer, C. P. (1972). Existence, relatedness, and growth: Human needs in organizational settings. New York: The Free Press.

Alfred, R. L. (1992). Making community colleges more effective: Leading through student success. (ERIC Document Reproduction Service No. (ED 354 933).

Alfred, R. L., & Kreider, P. (1991). Creating a culture for institutional effectiveness. Community, Technical, and Junior College Journal, 61(5), 34-39.

American Council on Education, National Center for Academic Achievement and Transfer. (1991). Setting the national agenda: Academic achievement and transfer. Washington, DC: Author.

Amonette, A. M. A. (1988). The success of Volunteer State Community College graduates who transfer to Middle Tennessee State University and acquire a baccalaureate degree as assessed by the grade point average and the perception of each student (Doctoral dissertation, Tennessee State University, 1985). Dissertation Abstracts International, 48(11), 2793A.

Anderson, K. (1984). Institutional differences in college effects. Boca Raton, FL: Florida Atlantic University. ERIC Document Reproduction No. (ED 256 204)

Astin, A. W. (1964). Personal and environmental factors associated with college dropouts among high aptitude students. Journal of Educational Psychology, 55, 219-227.

Astin, A. W. (1975). Preventing students from dropping out. San Francisco: Jossey-Bass, Inc., Publishers.

Astin, A. W. (1977). Four critical years: Effects of college on beliefs, attitudes, and knowledge. San Francisco: Jossey-Bass, Inc., Publishers.

Astin, A. W. (1982). Minorities in higher education. San Francisco: Jossey-Bass, Inc., Publishers.

Astin, A. W. (1985). Achieving educational excellence. San Francisco: Jossey-Bass, Inc., Publishers.

Astin, A. W. (1993). What matters most in college: Four critical years revisited. San Francisco: Jossey-Bass, Inc., Publishers.

Astin, A. W., Green, K. C., Korn, W. S., & Schalit, M. (1987). The American freshman: National norms for fall 1987. Los Angeles: University of California, Graduate School of Education, Higher Education Research Institute.

Astin, A. W., & Holland, J. L. (1961). The environmental assessment technique: A way to measure college environments. Journal of Educational Psychology, 52, 308-316.

Ballesteros, E. J. (1988). Whatever happened to access? College and University, 64(1), 91-121.

Bayer, A. E. (1968). The college dropout: Factors affecting senior college completion. Sociology of Education, 41, 305-316.

Bensimon, E. M. (1994). Understanding administrative work. In A. M. Cohen, F. B. Brawer, and Associates, Managing community colleges: A handbook for effective practice. San Francisco: Jossey-Bass, Inc., Publishers.

Bers, T. H. (1988). Student major choices and community college persistence. Research in Higher Education, 29(2), 161-173.

Bers, T. H., & Smith, K. E. (1991). Persistence of community college students: The influence of student intent and social integration. Research in Higher Education, 32(5), 539-556.

Blanco, C. D. (1994). Doing more with less: Approaches to shortening time to degree. Denver, CO: State Higher Education Executive Officers.

Borg, W. R. & Gall, M. D. (1989). Educational research: An introduction (5th ed.). New York: Longman.

Bragg, A. K. (1982). Fall 1979 transfer study. Report 2: First year persistence and achievement. Springfield, IL: Illinois Community College Board. (ERIC Document Reproduction Service No. ED 220 165)

Brint, S. & Karabel, J. (1989). The diverted dream: Community colleges and the promise of educational opportunity in America, 1900-1985. New York: Oxford University Press.

Brune, M. (1996). An analysis of institutional factors extending time to graduation for undergraduate students. Unpublished paper, University of Florida. Gainesville, FL: Author.

California Community Colleges, Office of the Chancellor. (1984). Transfer education: California community colleges. (ERIC Document Reproduction Service No. ED 250 025)

Caplan, R. D., & Van Harrison, R. (1993). Person-environment fit theory: Some history, recent developments, and future directions. Journal of Social Issues, 49(4), 253-275.

Carroll, C. D. (1989). College persistence and degree attainment for 1980 high school graduates: Hazards for transfers, stopouts, and part-timers. Washington, DC: National Center for Education Statistics.

Carroll, J. (1988). Freshman retention and attrition factors at a predominantly black urban community college. Journal of College Student Development, 29, 52-59.

Carroll, S. C. (1990). The transfer mission. In D. Doucette & B. Hughes (Eds.), Assessing institutional effectiveness in community colleges, (pp. 7-12). Laguna Hills, CA: League for Innovation in the Community College.

Carter, D. J. (1990a). Racial and ethnic trends in college participation: 1976 to 1988 (ACE Research Briefs, Vol. 1, No. 3). Washington, DC: American Council on Education.

Carter, D. J. (1990b). Community and junior colleges: A recent profile (ACE Research Briefs, Vol. 1, No. 4). Washington, DC: American Council on Education.

City Colleges of Chicago, Office of Planning, Development and Research. (1990). How long does it take to get a community college degree? The experience of Spring 1987 graduates of the City Colleges of Chicago. Chicago: Author.

Clark, B. (1960). The open-door college: A case study. New York: McGraw-Hill.

Clowes, D. A., Hinkle, D. E., & Smart, J. C. (1986). Enrollment patterns in post-secondary education, 1961-1982. Journal of Higher Education, 57(2), 121-133.

Cohen, A. M. (1983). Understanding the transfer function in California. Community College Review, 10(4), 18-23.

Cohen, A. M. (1988). Degree achievement by minorities in community colleges. Review of Higher Education, 11(4), 383-402.

Cohen, A. M. (1994). Community colleges. International Encyclopedia of Education. (2nd ed.). Elmsford, NY: Pergamon Press.

Cohen, A. M., & Brawer, F. B. (1981-82). Transfer and attrition points of view. The persistent issues. Community/Junior College Journal, 52(4), 17-21.

Cohen, A. M., & Brawer, F. B. (1989). The American community college (2nd ed.). San Francisco: Jossey-Bass, Inc., Publishers.

Cohen, A. M., & Brawer, F. B. (1996). The American community college (3rd ed.). San Francisco: Jossey-Bass, Inc., Publishers.

Cohen, A. M., Brawer, F. B., & Bensimon, E. M. (1985). Transfer education in American community colleges. Los Angeles, CA: Center for the Study of Community Colleges. (ERIC Document Reproduction Service No. ED 255 250)

Cope, R., & Hannah, W. (1975). Revolving college doors. New York: John Wiley & Sons.

Crook, D. B., & Lavin, D. E. (1989, March). The community college effect revisited: The long term impact of community college entry on B. A. attainment. A paper presented at the Annual Meeting of the American Educational Research Association, San Francisco. (ERIC Document Reproduction Service No. ED 306 977)

Date, S. (1996, July 21). Colleges teaching grade 13: High school graduates need remedial classes. Ocala, FL: Ocala Star-Banner.

Davis, K. (1981). Human behavior at work: Organizational behavior (6th ed.). New York: McGraw-Hill.

Deas, E. (1994). Board and administrative relationships contributing to community college climate: A case study. Community College Review, 22(1), 44-52.

Doucette, D. S., & Teeter, D. J. (1985, April). Student mobility among the public community colleges and universities in the state of Kansas. A paper presented at the 25th Annual Forum of the Association for Institutional Research, Portland, OR. (ERIC Document Reproduction Service No. ED 262 844)

Dougherty, K. (1992). Community colleges and baccalaureate attainment. Journal of Higher Education, 63(2), 188-214.

Ehrle, E. B., & Bennett, J. B. (1988). Managing the academic enterprise: Case studies for deans and provosts. New York: American Council on Education/Macmillan Publishing Co.

El-Khawas, E. (1992). Campus trends, 1992 (Higher Education Panel Report No. 82). Washington, DC: American Council on Education. (ERIC Document Reproduction Service No. ED 347 922).

Endo, J. J., & Harpel, R. L. (1982). The effect of student-faculty interaction on students' educational outcomes. Research in Higher Education, 16, 115-138.

Fowler, F. J., Jr. (1984). Survey research methods. Beverly Hills, CA: Sage Publications, Inc.

Friedlander, J. (1980). An ERIC review: Why is transfer education declining? Community College Review, 8(2), 59-65.

Fryer, T. W., Jr., Berman, P., Weiler, D., & Clawson, C. (1990). NETC's new definition of transfer. Community, Technical, and Junior College Journal, 60(6), 30-31.

Gati, I. (1989). Person-environment fit research: Problems and prospects. Journal of Vocational Behavior, 35(4), 181-193.

Gosman, E. J., Dandridge, B. A., Nettles, M. T., & Thoeny, A. R. (1983). Predicting student progression: The influence of race and other student and institutional characteristics on college student performance. Research in Higher Education, 18, 209-236.

Graham, S., & Dallam, J. (1986). Academic probation as a measure of performance: Contrasting transfer students to native students. Community/Junior College Quarterly, 10(3), 23-33.

Grosset, J. M. (1993). A profile of community college stop-outs. Community College Review, 20(4), 51-58.

Grubb, W. N. (1991). The decline of community college transfer rates: Evidence from national longitudinal surveys. Journal of Higher Education, 62(2), 194-222.

Hackman, J. R., & Dysinger, W. S. (1970). Research notes: Commitment to college as a factor in student attrition. Sociology of Education, 43, 311-324.

Halpin, R. L. (1990). An application of the Tinto model to the analysis of freshman persistence in a community college. Community College Review, 17 (4), 22-32.

Hill, S., & Owings, M. (1986, November). Completion time for bachelors degrees. Washington, DC: Center for Education Statistics. (ERIC Document Reproduction Service No. (ERIC Document Reproduction Service No. ED 276 376)

Hills, J. R. (1965). Transfer shock: The academic performance of the junior college transfer. The Journal of Experimental Education, 33, 201-215.

Iffert, R. E. (1957). Retention and withdrawal of college students (U.S. Department of Health, Education, and Welfare, 1958 Bulletin, No. 1). Washington, DC: U.S. Government Printing Office.

Illinois State Board of Higher Education. (1992). Baccalaureate student graduation rates and time to degree at Illinois public universities. Springfield, IL: Author. (ERIC Document Reproduction Service No. ED 366 283).

Johnson County Community College, Office of Institutional Research. (1991). Kansas Community Colleges' class of 1987 five year longitudinal study. Overland Park, KS: Author.

Jones, J. C., & Lee, B. S. (1992). Moving on: A cooperative study of student transfer. Research in Higher Education, 33(1), 125-140.

Karabel, J. (1972). Community colleges and social stratification. Harvard Educational Review,42, 521-562.

Karabel, J. (1986). Community colleges and social stratification in the 1980s. In L. S. Zwerling (Eds.), The community college and its critics. New directions for community colleges. (Vol. 54, pp. 13-30). San Francisco: Jossey-Bass, Inc., Publishers.

Kempner, K., & Kinnick, M. (1990). Catching the window of opportunity: Being on time for higher education. Journal of Higher Education, 61(5), 535-547.

Kinnick, M., & Kempner, K. (1988). Beyond "front door" access: Attaining the bachelors degree. Research in Higher Education, 29(4), 299-318.

Kintzer, F. C., & Wattenbarger, J. L. (1985). The articulation/transfer phenomenon: Patterns and directions. Washington, DC: American Association of Community and Junior Colleges. (ERIC Document Reproduction Service No. ED 257 539)

Kissler, G. R. (1981, May). From junior colleges to community colleges: The effect on four-year institutions. A paper presented at the 21st Annual Forum of the Association for Institutional Research, Los Angeles. (ERIC Document Reproduction Service No. ED 205 226)

Kissler, G. R., Lara, J. F., & Cardinal, J. L. (1981, April). Factors contributing to the academic difficulties encountered by students who transfer from community colleges to four-year institutions. A paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles. (ERIC Document Reproduction Service No. ED 203 920)

Knight, W. E. (1994). Why the five year (or longer) bachelors degree?: An exploratory study of time to degree attainment. New Orleans, LA: Forum of the Association of Institutional Research. (ERIC Document Reproduction Service No. ED 373 645)

Knoell, D. M. (1960). Institutional research on orientation and withdrawal. In H. T. Sprague (Ed.), Research on college students (pp. 41-65). Berkeley, CA: Center for Higher Education.

KPMG Peat Marwick. (1989, August). Length of time to complete an undergraduate degree. Des Moines, IA: Iowa Board of Regents.

Lavin, D. E. (1965). The prediction of academic performance. New York, NY: Russell Sage Foundation.

Lavin, D. E., & Crook, D. B. (1990). Open admissions and its outcomes: Ethnic differences in long-term educational attainment. American Journal of Education, 98, 389-425.

Lavin, D. E., Murtha, J., & Kaufman, B. (1984). Long term graduation rates of students at the City University of New York. New York: City University of New York, Office of Institutional Research and Analysis. (ERIC Document Reproduction Service No. ED 247 858).

Lee, V. E., & Frank, K. A. (1989). Student characteristics which facilitate transfer from two-year to four-year colleges. Ann Arbor, MI: University of Michigan. (ERIC Document Reproduction Service No. ED 315 124)

Likert, R. L. (1967). The human organization: Its management and value. New York: McGraw-Hill.

Lombardi, J. (1979). The decline of transfer education (Topical Paper No. 70). Los Angeles: University of California. (ERIC Document Reproduction Service No. ED 179 272)

McIntyre, C. (1987). Assessing community college transfer performance. Research in Higher Education, 27(2), 142-162.

Michigan State Board of Education. (1990). Opinions and attitudes of statewide community college students, June 1990. Lansing, MI: Author.

Middleton, L. (1981 February 3). Emphasis on standards at Miami-Dade leads to 8,000 dismissals and suspensions in three years. Chronicle of Higher Education, pp. A3-A4.

Mulligan, S. C., & Hennessy, J. J. (1990, April). Persistence in a community college: Testing attrition models. A paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA.

Murdock, T. A. (1987). It isn't just money: The effects of financial aid on student persistence. The Review of Higher Education, 11, 75-101.

National Collegiate Athletic Association. (1992). Graduation rates summary: 1991-92 Division I. Overland, KS: Author.

Nora, A. (1990, May/June). Campus based aid programs as determinants of retention among Hispanic community college students. Journal of Higher Education, 61(3), 312-331.

Nunley, C. R., & Breneman, D. W. (1988). Defining and measuring quality in community college education. In J. S. Eaton (Ed.), Colleges of choice (pp. 62-92). New York: American Council on Education, Macmillan.

O'Brian, E. M. (1992). Part-time enrollment: Trends and issues (ACE Research Briefs Vol. 3, No. 8). Washington, DC: American Council on Education.

O'Conner, P. J. (1994). The needs of adult university students: A case study. College and University, 69, 84-87.

Ottinger, C. (1991a). College going, persistence, and completion patterns in higher education (ACE Research Briefs Vol. 2, No. 3). Washington, DC: American Council on Education.

Ottinger, C. (1991b). The higher education enterprise (ACE Research Briefs Vol. 2, No 8). Washington, DC: American Council on Education.

Pace, C. R., & Stern, G. G. (1958). An approach to the measurement of psychological characteristics of college environments. Journal of Educational Psychology, 49, 234-269.

Palmer, J. (1987-88). The associate degree. Community, Technical, and Junior College Journal, 58(3), 56-57.

Palmer, J. (1990). Is vocationalism to blame? Community, Technical, and Junior College Journal, 60(6), 21-25.

Palmer, J., & Eaton, J. S. (1991). Building the national agenda for transfer: A background paper. In the American Council on Education, Setting the national agenda: Academic achievement and transfer. Washington, DC: ACE.

Panos, R. J., & Astin, A. W. (1968). Attrition among college students. American Educational Research Journal, 5, 57-72.

Pantages,T. J., & Creedon, C. F. (1978). Studies of college attrition: 1950-1975. Review of Educational Research, 48, 49-101.

Pascarella, E. T. (1980). Student faculty informal contact and college outcomes. Review of Educational Research, 50, 545-595.

Pascarella, E. T., & Chapman, D. W. (1983a). Validation of a theoretical model of college withdrawal: Interaction effects in a multi-institutional sample. Research in Higher Education, 19, 25-48.

Pascarella, E. T., & Chapman, D. W. (1983b). A multi-institutional, path analytic validation of Tinto's model of college withdrawal. American Educational Research Journal, 20(1), 87-102.

Pascarella, E. T., Duby, P. B., Miller, V. A., & Rasher, S. P. (1981). Pre-enrollment variables and academic performance as predictors of freshman year persistence, early withdrawal, and stopout behavior in an urban, nonresidential university. Research in Higher Education, 15, 329-349.

Pascarella, E. T., Smart, J. C., & Ethington, C. A. (1986). Long-term persistence of two-year college students. Research in Higher Education, 24(1), 47-71.

Pascarella, E. T., & Terenzini, P. T. (1991). How college affects students: Findings and insights from twenty years of research. San Francisco: Jossey-Bass, Inc., Publishers.

Pascarella, E. T., Terenzini, P. T., & Hibel, J. (1978). Student-faculty interactional settings and their relationship to predicted academic performance. Journal of Higher Education, 49, 450-463.

Peng, S. S., & Fetters, W. B. (1978). Variables involved in withdrawal during the first two years of college: Preliminary findings from the national longitudinal study of the high school class of 1972. American Educational Research Journal, 15, 361-372.

Pervin, L. A., & Rubin, D. B. (1967). Student dissatisfaction with college and the college dropout: A transactional approach. Journal of Social Psychology, 72, 285-295.

Pfeifer, C. M., Jr. (1976). Relationship between scholastic, aptitude, perception of university climate, and college success for black and white students. Journal of Applied Psychology, 61, 341-347.

Philadelphia Community College, Office of Institutional Research. (1982). Student flow of the 1982 graduates (Research Report No. 23). Philadelphia: Author. (ERIC Document Reproduction Service No. ED 256 384)

Phlegar, A. G., Andrew, L. S., & McLaughlin, G. W. (1981). Explaining the academic performance of community college students who transfer to a senior institution. Research in Higher Education, 15(2), 99-108.

Pincus, F. L., & Archer, E. (1989). Bridges to opportunity: Are community colleges meeting the transfer needs of minority students? New York: Academy for Educational Development and the College Entrance Examination Board.

Pincus, F. L., & DeCamp, S. (1989). Minority college students who transfer to four-year colleges: A study of a matched sample of B. A. recipients and non-recipients. Community and Junior College, 13(3-4), 191-219.

Porter, O. F. (1990). Undergraduate completion and persistence at four-year colleges and universities: Detailed findings. Washington, DC: National Institute of Independent Colleges and Universities.

Rendon, L., Justiz, M., & Resta, P. (1988). Transfer education in southwest community colleges. Columbia, SC: University of South Carolina Press.

Richardson, R. C., & Bender, L. W. (1987). Fostering minority access and achievement in higher education. San Francisco: Jossey-Bass, Inc., Publishers.

Sanford, N. (1962). The American college. New York: John Wiley & Sons, Inc., Publishers.

Schmitz, C. C., del Mas, R. C. (1989). Everything you always wanted to know about transfer rates but were afraid to ask (Topical Paper No. 1). Minneapolis, MN: University of Minnesota, General College. (ERIC Document Reproduction Service No. ED 308 895)

Sewell, W. H., & Shah, V. P. (1968). Parents' education and children's educational aspirations and achievements. American Sociological Review, 33, 191-209.

Sexton, V. S. (1965). Factors contributing to attrition in college populations: Twenty-five years of research. Journal of General Psychology, 72, 301-326.

Shavelson, R. J. (1988). Statistical reasoning for the behavioral sciences (2nd ed.). Needham Heights, MA: Allyn and Bacon, Inc.

Shultz, R. A., Dickman, M. M., Campbell, N. J., & Snow, B. M. (1992). Assessing short term intervention to facilitate academic success. NASPA Journal, 30, 43-50.

Simpson, W. A. (1987). Tracking students through majors: Methodology and applications. Journal of Higher Education, 58(3), 323-343.

Smith, A. W., & Allen, W. R. (1984). Modeling black student academic performance in higher education. Research in Higher Education, 21, 210-225.

Smith, K., & Szeszycki, D. (1990). Examining the persistence and performance of transfer students. A paper presented at the 30th Annual Forum of the Association for Institutional Research, Louisville, KY.

Spady, W. G. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. Interchange, 1, 64-85.

Spady, W. G. (1971). Dropouts from higher education: Toward an empirical model. Interchange, 2, 38-62.

Starr, A., Betz, E. L., & Menne, J. (1972). Differences in college student satisfaction, academic dropouts, nonacademic dropouts, and non-dropouts. Journal of Counseling Psychology, 19, 318-322.

Stern, G. G. (1971). Self-actualizing environments for students. School Review, 80, 1-25.

Stoecker, J., Pascarella, E., & Wolfle, L. (1988). Persistence in higher education: A 9-year test of a theoretical model. Journal of College Student Development, 29, 196-209.

Summerskill, J. (1962). Dropouts from college. In N. Sanford (Ed.), The American college pp. 627-657). New York: John Wiley & Sons, Inc.

Temple, M., & Polk, A. (1986). A dynamic analysis of educational attainment. Sociology of Education, 59, 79-84.

Terenzini, P. T., & Pascarella, E. T. (1977). Voluntary freshman attrition and patterns of social and academic integration in a university: A test of a conceptual model. Research in Higher Education, 6, 25-43.

Terenzini, P. T., & Pascarella, E. T. (1980). Toward a validation of Tinto's model of college student attrition: A review of recent studies. Research in Higher Education, 12, 271-282.

Theophilides, C., Terenzini, P. T., & Lorang, W. (1984). Freshman and sophomore experiences and changes in major field. Review of Higher Education, 7(3), 261-278.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. Review of Educational Research, 45, 89-125.

Tinto, V. (1987). Leaving college: Rethinking the causes and cures of student attrition. Chicago: University of Chicago Press.

Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. Journal of Higher Education, 59(4), 438-455.

Tinto, V. (1993). Leaving college: Rethinking the causes and cures of student attrition (2nd ed.). Chicago: University of Chicago Press.

Velez, W. (1985). Finishing college: The effects of college type. Sociology of Education, 58, 191-200.

Velez, W., & Javalgi, R. G. (1987). Two-year college to four-year college: The likelihood of transfer. American Journal of Education, 96(1), 81-94.

Voorhees, R. A. (1987). Toward building models of community college persistence: A logic analysis. Research in Higher Education, 26(2), 115-129.

Walleri, R. D. (1981). Student retention and attrition in the community college: A review and research design. Gresham, OR: Mount Hood Community College. (ERIC Document Reproduction Service No. ED 210 064)

Washington State Board for Community College Education. (1989, January). A study of the role of community colleges of the achievement of the bachelor's degree in Washington state: Results of the Spring 1988 Bachelor's Degree Survey (Operations Report No. 89-1). Olympia, WA: Author.

Webb, M. (1989). A theoretical model of community college student degree persistence. Community College Review, 16(4), 42-49.

Weissman, J. (1990). Linking institutional characteristics, educational strategy, and student retention in colleges and universities. Louisville, KY: Forum of the Association of Institutional Research. (ERIC Document Reproduction Service No. 321 700)

Williamson, D. R., & Creamer, D. G. (1988). Student attrition in 2- and 4-year colleges: Application of a theoretical model. Journal of College Student Development, 29, 210-217.

Young, F. H. (1982). Assessment, historical perspective, and prediction of the academic performance at senior institutions of transfer students from a multi-campus community college district. Doctoral dissertation, University of Southern California. (ERIC Document Reproduction Service No. ED 248 925)

Zaccaria, L., & Creaser, J. (1971). Factors related to persistence in an urban commuter university. Journal of College Student Personnel, 12, 286-291.

BIOGRAPHICAL SKETCH

James R. Cooper is new to the field of education, having had a prior career in the field of aerospace engineering management for the U.S. government and civilian contractors. He holds a bachelor's degree in applied biology/pharmacy from Ferris State University, Big Rapids, MI; a second bachelor's degree in vocational education, also from Ferris State University; and a master of public administration from Golden Gate University, San Francisco, CA. He also holds a current teaching credential in the State of Michigan. He has completed a full-time administrative internship in the vice president of administration office at Central Florida Community College in Ocala, FL. Most recently Mr. Cooper has served the past two years as the associate executive director of the Community College Business Officers professional organization located at the Institute of Higher Education, University of Florida. He also serves as the editor of *The Bottom Line,* a *CCBO* publication. Prior to full-time attendance in the higher education administration program at the University of Florida, Mr. Cooper spent several years in retirement.

In 1996, Mr. Cooper was selected a "a rising star" community college business officer and attended the first annual *CCBO* Business Officers Academy. He has represented the *CCBO* on the AACC council of council chairs in Washington, DC and Atlanta, GA. He is a member of Kappa Delta Pi, an international education honor society, and has been selected for Who's Who in American Colleges and Universities, Who's Who in the South and Southwest, Who's Who in Science and Engineering, and most recently was nominated for inclusion in the 1998 edition of Who's Who in the World.

In addition to his work as a leader in the field of education, Mr. Cooper is a member of the American Management Association, the American Society of Association Executives, the American Association of Public Administrators, and is involved in a number of community activities, including acting as a Probate Court volunteer youth probation officer.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Dale F. Campbell
Dale F. Campbell, Chair
Professor of Educational Leadership

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

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James Doud,
Professor of Educational Leadership

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

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This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Education.

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